

**CARSON WATER SUBCONSERVANCY DISTRICT  
BOARD OF DIRECTORS  
AND CARSON RIVER WATERSHED COMMITTEE**

**NOTICE OF PUBLIC MEETING**

**DATE:** May 19, 2021

**TIME:** 6:30pm

**LOCATION:** CWSD Conference Room or Video Conference ZOOM Meeting  
777 E. William Street, Suite #110A  
Carson City, NV 89701

This will be our first “hybrid” meeting allowing for in-person attendance while adhering to Covid-19 directives. Anyone attending in-person must wear a mask at all times while in the building, per Carson City mandate. You may also attend the meeting virtually by clicking this [Zoom Link](#). If you prefer to phone in, call (669)900 9128. Meeting ID: 872 0443 0895; Passcode: 568664. You may also provide public comment in advance of a meeting by written submission to the following email address: [catrina@cwsd.org](mailto:catrina@cwsd.org). For inclusion or reference in the minutes of a meeting, your public comment must include your full name and be submitted via e-mail by not later than 3pm the day before the date of the meeting.

**AGENDA**

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**Please Note:** The Carson Water Subconservancy District (CWSD) Board may: 1) take agenda items out of order; 2) combine two or more items for consideration; and/or 3) remove an item from the agenda or delay discussion related to an item at any time. All votes will be conducted by CWSD Board of Directors. Reasonable efforts will be made to assist and accommodate individuals with disabilities who wish to attend the meeting. Please contact Catrina Schambra at (775)887-7450 ([catrina@cwsd.org](mailto:catrina@cwsd.org)), at least two business days in advance so that arrangements can be made.

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1. Call to Order the CWSD Board of Directors/Carson River Watershed Committee
2. Roll Call
3. Pledge of Allegiance
4. For Discussion Only: Public Comment - Action may not be taken on any matter brought up under public comment until scheduled on an agenda for action at a later meeting.
5. For Possible Action: Approval of Agenda
6. For Possible Action: Approval of the Board Meeting Minutes of April 21, 2021

**CONSENT AGENDA**

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**Please Note:** All matters listed under the consent agenda are considered routine and may be acted upon by the Board of Directors with one action and without an extensive hearing. Any member of the Board or any citizen may request that an item be taken from the consent agenda, discussed, and acted upon separately during this meeting.

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7. For Possible Action: Approval of Treasurer’s Report for April 2021
8. For Possible Action: Approval of Payment of Bills for April 2021
9. For Possible Action: Approval of Revised Lost Lake Agreement with Carson City

**\*\*END OF CONSENT AGENDA\*\***

10. For Possible Action: Public Hearing of CWSD FY 2021-22 Tentative Budget
11. For Possible Action: Presentation by Lumos on the USBR Water Marketing Study
12. For Discussion Only: Presentation on River Wranglers Activities
13. For Discussion Only: Update on Carson River Float Trip
14. For Discussion Only: Update on launch of "Water Connects Us All" program
15. For Possible Action: Approval of the General Fund, Acquisition/Construction Fund, and Floodplain Management Fund FY 2021-22 Final Budgets
16. For Possible Action: Work with Water Purveyors and Communities on Water Awareness and Conservation Program
17. For Possible Action: Update on the 2021 Legislation Session
18. For Discussion Only: Update on 2021 Water Year
19. For Discussion Only: Staff Reports - General Manager
  - Legal
  - Correspondence
20. For Discussion Only: Directors Reports
21. For Discussion Only: Update on activities in Alpine County
22. For Discussion Only: Update on activities in Storey County
23. For Discussion Only: Public Comment - Action may not be taken on any matter brought up under public comment until scheduled on an agenda for action at a later meeting.
24. For Possible Action: Adjournment

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***Supporting material for this meeting may be requested from Catrina Schambra at 775-887-7450 ([catrina@cwsd.org](mailto:catrina@cwsd.org)) and is available on the CWSD website at [www.cwsd.org](http://www.cwsd.org).***

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**In response to COVID-19 Emergency Directive:**

Posting in public buildings in accordance with NRS 241.020 has been waived by COVID-19 Emergency Directive #6 of Governor Sisolak. Therefore, this notice and agenda of video conference meeting has been posted on or before 9am on May 11, 2021 on the following websites for the May 19, 2021 regular meeting of the Carson Water Subconservancy District and the Carson River Watershed Committee, in accordance with NRS 241.020:

**Carson Water Subconservancy District Website:**

<http://www.cwsd.org>

**State of Nevada Public Meetings Website:**

<http://notice.nv.gov>

**AGENDA ITEM #6**

**MINUTES OF LAST  
BOARD MEETING**

CARSON WATER SUBCONSERVANCY DISTRICT  
BOARD OF DIRECTORS AND  
CARSON RIVER WATERSHED COMMITTEE MEETING  
April 21, 2021

**Draft Minutes**

***The CWSD April 21, 2021 Board of Directors meeting was held via Zoom Videoconference and teleconference due to Governor Sisolak's statewide Emergency Directive in response to the COVID-19 Pandemic.***

Vice Chairman Gray called the meeting of the Carson Water Subconservancy District (CWSD) to order at 6:30pm. Roll call of the CWSD Board was taken and a quorum was determined to be present.

**CWSD Directors present:**

John Engels, Director  
Ken Gray, Director  
Jack Jacobs, Director  
David Nelson, Director  
Erne Schank, Director  
Lisa Schuette, Director  
Fred Stodieck, Director  
Mike Workman, Director

Absent: Mark Gardner, Stacey Giomi, and Pete Olsen.

Roll call of the Carson River Watershed Committee included CWSD Directors and Committee Members present - Kathy Canfield, David Griffith, and January Riddle.

**CWSD Staff & Guests present:**

Shane Fryer, Watershed Program Specialist  
Brenda Hunt, Watershed Program Manager  
Edwin James, General Manager  
Patrick King, CWSD Attorney  
Ramon Naranjo, USGS  
Debbie Neddenriep, Water Resource Specialist II  
Catrina Schambra, Administrative Assistant/Secretary to the Board  
Katie Smith, Watershed Technician – AmeriCorps

*The Pledge of Allegiance was led by Committee Member Griffith.*

**Item #4 – Discussion Only: Public Comment**

Director Engels commented he would like CWSD to consider a PR campaign with the counties regarding the serious lack of water due to severe drought conditions. Director Gray asked Mr. James to add this discussion item to the agenda for our May meeting.

**Item #5 – For Possible Action: Approval of Agenda**

Director Gray announced it was requested to move Item #17 to #7, before Consent Agenda.

*Committee Member Griffith made a motion to approve today's Agenda with the*



*requested change. The motion was seconded by Director Jacobs and unanimously approved by the Board.*

**Item #6 – For Possible Action: Approval of the Board Meeting Minutes of March 17, 2020**

*Director Jacobs made a motion to approve the Board Meeting Minutes of March 17, 2021 with a typo correction noted. The motion was seconded by Director Schutte and unanimously approved by the Board.*

**\*Item #17 – For Discussion Only: Discussion regarding CWSD Board of Directors Liability**

CWSD Legal Counsel, Patrick King addressed the issue raised by Committee Member David Griffith at the March Board meeting: does CWSD liability insurance cover Civil Rights at a local, State and Federal level. Mr. King confirmed the coverage and read the relevant language to the Board. This liability insurance is thru POOL/PACT and Mr. King would be the contact should the need for a claim arise. His legal opinion would be considered in determining the liability claim merits. CWSD has a \$10 Million policy.

*No action was taken.*

**\*\*CONSENT AGENDA\*\***

**Item #7 - For Possible Action: Approval of Treasurer's Report for March 2021**

**Item #8 - For Possible Action: Approval of Payment of Bills for March 2021**

**Item #9 - For Possible Action: Approval of Contract #2021-24 Kimley-Horn: Conduct Smelter Creek LOMR Study in an amount not to exceed \$70,000**

**Item #10 - For Possible Action: Approval of Contract #2021-25 Michael Baker: Develop a Web Access System for Flood Studies Data in the Carson River Watershed in an amount not to exceed \$160,000 and 3 years of hosting infrastructure at \$7,200 annual fee**

**Item #11 - For Possible Action: Approval of Contract #2021-26 HDR: Develop a Carson River Regional Flood Forecasting Model in an amount not to exceed \$67,886**

**Item #12 - For Possible Action: Authorize CWSD staff to apply to FEMA for CTP funding in the amount of \$785,000**

*Director Jacobs made a motion to approve Consent Agenda as presented. The motion was seconded by Director Stodieck and unanimously approved by the Board.*

**\*\*END OF CONSENT AGENDA\*\***

**Item #13 - For Discussion Only: Presentation by Ramon Naranjo with the USGS regarding Nitrates in Carson Valley**

Mr. Naranjo presented information gathered on changes in Nitrate levels in the water of Carson Valley after years of USGS monitoring. There was discussion on the use of 3-D models and the changes in the aquifer. Ruhenstroth and Johnson Lane areas were the focus of these studies. Mr. Naranjo stated that the main source of nitrates in the groundwater is coming from septic tanks. Director Workman stated DWR has a map guide with septic tank density by basin. Mr. Naranjo said this may be included in future

reports. He then explained the recharge of the aquifer and the calculation used. Director Engels mentioned that it is important to keep septic tanks well maintained.

*No action was taken.*

**Item #14 – For Discussion Only: Update on the Watershed Wednesdays Forum**

Brenda Hunt presented a report on the participation and insight gained from the extremely successful Watershed Wednesdays Forum that spanned all 5 Wednesdays in March. The virtual forum used both YouTube and Zoom platforms as well a dedicated mobile app for participants to engage. A few of the stats reported:

- 51 Presentations with 46 Individual Speakers
- 197 total registrants & 662 unique viewers
- 3,700 views of videos & over 322.7 hours of watch time on the CWSD YouTube Channel

The results of surveys and interest in future working groups was also part of the report. [CLICK HERE](#) to see her full presentation. Watershed Wednesdays is one of CWSD's most successful forum events and we look forward to building on this new method of outreach.

There were kudos from the Board of the great report and the successful event. Director Schank suggested we build on this with selected groups of students or classes in each county, maybe 2-3 times a year we can work with teachers in the classroom like Sierra Nevada Journeys or River Wranglers. Mr. James responded RW does work in the classroom and gets kids out to the river. Director Schank said this can enhance their programs, especially with the use of an app to participate! Director Schuette agrees. This is a great idea to educate and connect the communities. Debbie Neddenriep said RW has done a great job continuing their program throughout the pandemic and explained some of the things they have been doing to with their virtual curriculum. Director Schuette reiterated kudos for the Watershed Wednesdays Forum! Great outreach!

*No action was taken.*

**Item #15 – For Possible Action: Approval to submit application for a USBR WaterSmart Applied Science Grant in the amount of \$110,000**

Mr. James gave a brief explanation on the reasoning behind CWSD pursuing this grant. The Regional Water System & Flood Committee met on March 30, 2021 and voted unanimously to recommend the Board give staff approval to apply for this USBR grant. Mr. James explained for the new Board members why CWSD goes after grants instead of using our own money for funding in these areas. Years ago, the Board had directed staff not to use Ad Valorem funding for studies. It was the goal that we pursue grant funding for all study grants. Mr. James went over CWSD history of BOR grants and went over the total amount to be applied for with this one. Director Jacobs said this is a terrific project!

*Director Schank made a motion to approve Staff apply for a USBR WaterSmart Applied Science Grant in the amount of \$110,000. The motion was seconded by Director Workman and unanimously approved by the Board.*

**Item #16 – For Possible Action: Adopt Resolution #2021-1 authorizing the Board of Directors of Carson Water Subconservancy District to apply to the United States**

**Department of Interior, Bureau of Reclamation for a WaterSmart Applied Science Grant to update the USGS models for the Carson River and develop a Water Resource Plan**

Mr. James explained this Resolution must be adopted by the Board as part of the grant application protocol discussed in Item #15.

*Director Jacobs made a motion to Adopt Resolution #2021-1 authorizing the Board of Directors of Carson Water Subconservancy District to apply to the United States Department of Interior, Bureau of Reclamation for a WaterSmart Applied Science Grant to update the USGS models for the Carson River and develop a Water Resource Plan. The motion was seconded by Director Schuette and unanimously approved by the Board.*

**\*Item #18 - For Possible Action: Adopt revised CWSD Director Meeting Compensation Policy & Procedures**

Mr. James explained the reasons for the changes in the policy during the pandemic lockdown and how moving forward we will continue “hybrid” meetings until further notice. However, during summer field trips a reliable Wi-Fi signal may not be available for a virtual option. Annual field trips have always been a team building and to better understand water issues in each county. All Board members are encouraged to attend and participate. The Directors Fee requirement of having to appear in-person at meetings was waived during the lockdown period and is the question at hand in the revised policy. Director Gray and Director Schank agree it ought to be kept in place until the end of the year as is, since we have no idea what will happen with the pandemic in the coming months. Committee Member Riddle comments that we must remember that members may not have access to virtual meetings and can only phone in. Consensus arrived that telephone conference attendance (w/no video) will continue to be paid until the end of the year and the Board will revisit this issue in December or January.

*Director Workman made a motion to keep the compensation policy for Board Members as it is currently: waiving in-person attendance requirement for compensation, through the end of 2021. The motion was seconded by Director Schank and unanimously approved by the Board.*

**Item #19 - For Discussion Only: Update on the 2021 Legislation Session**

Mr. James discussed the various issues being addressed in the legislation session and how they would possibly affect CWSD. Director Gray noted that he would like to be present when the Storey County CWSD legislation is passed and would like the action publicized. It has been years in the making!

*No action was taken.*

**Item #20 - For Possible Action: Future use of Lost Lakes**

Mr. James announced they is new information regarding the increased fees for Lost Lakes water use. The increased fees apply if the water used as a source of income. Because we sell the water to Carson City, we are subjects to this new fee structure. He suggests the way to handle this new development would be to not charge Carson City for the use of our water. If we amend our agreement with Carson City we can still have them agree to pay the annual permit fee but give them the water for free. They would still be required to use the Mud Lake water first which they would pay for. Mr. James believes this is the best solution to the fee problem. Director asked about the possibility of moving the water rights. Mr. James said that would take 3-5 years

to accomplish and we need to address the exorbitant fees issue now.

*Director Jacobs made a motion to amend our agreement with Carson City on Lost Lakes water use to have them only pay for annual permit fee and get the water for no charge after they have used Mud Lake water first. The motion was seconded by Director Schank and unanimously approved by the Board.*

**Item #21 - For Discussion Only: Update on 2021 Water Year**

Mr. James gave a slide presentation on the 2021 Water Year to the Board. Not much has changed since the report last month. Water levels are still far below normal as the drought continues.

*No action was taken.*

**Item #22 – For Discussion Only: Staff Reports –**

Mr. James reported the following:

- The Float Trip is coming up on April 29 from Cradlebaugh Bridge to Carson River Park. Not sure there will be enough water! We will not know until next week. Fingers crossed!
- Individual meetings with Mr. James and Board members are being setup now. This is part of his annual review process. He will be in contact to see the best place and time for Directors to meet with him to discuss progress, goals, and ideas.
- CWSD is hoping to start up annual field trips in June. Directors, please submit specific areas you want the Board to visit in your county.
- The May 19 Board meeting will be a hybrid in-person/zoom meeting. Board members can come to the CWSD office to attend in person if they wish.

Brenda Hunt reported the following:

- The PSA video launched this week. It was prepped to correspond with Earth Day. Site has had 7,000+ views so far. Ms. Hunt did 3 interviews this morning on radio and TV. Huge kudos to NEON Agency for their great work!

**Legal** – Mr. King said he is looking forward to seeing everyone in person soon.

**Correspondence** – (1) Letter of Support to CCPW for EPA grant application.

(2) Letter of Commitment to match funds for Do Cty Westwood project

*No action was taken.*

**Item #23 – For Discussion Only: Directors Reports –**

- Director Schank announced Director Olsen is absent because of a family issue. He asked that all keep him and his family in our prayers.
- Director Engels reported that he met with City Manager Cates and learned that HUD Bay Mining Co. wants to dig in West Lyon County, expanding into Douglas County (NE quadrant). If project approved, it would be one of the largest open pit copper mines in the US. He is not sure if this would affect the Carson River. It is only in discussion stage at this point.

*No action was taken.*

**Item #24– For Discussion Only:** Update on activities in Alpine County – None

**Item #25– For Discussion Only:** Update on activities in Storey County –

- Committee Member Canfield reported the Gold Hill Treatment Plant is not expected to be completed until the end of summer due to shipping delays. The Mark Twain area has culvert and ditch work being done.

*No action was taken.*

**Item #26 – For Discussion Only:** Public Comment – None

There being no further business to come before the Board, Director Gray adjourned the meeting at 8:36 pm.

Respectfully submitted,

*Catrina Schambra*

Secretary to the Board

*\*Changed agenda item order.*

## **AGENDA ITEM #7**

### **TREASURER'S REPORT**

**Floodplain Management Fund**  
**Balance Sheet**  
As of April 30, 2021

	Apr 30, 21
<b>ASSETS</b>	
Current Assets	
Checking/Savings	
1013-03 · LGIP - Floodplain	366,756.67
Total Checking/Savings	366,756.67
Total Current Assets	366,756.67
<b>TOTAL ASSETS</b>	<b>366,756.67</b>
<b>LIABILITIES &amp; EQUITY</b>	
Equity	
32000 · Retained Earnings	405,127.18
Net Income	-38,370.51
Total Equity	366,756.67
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>366,756.67</b>

11:54 AM

05/02/21

Cash Basis

# Floodplain Management Fund

## Profit & Loss Budget vs. Actual

July 2020 through April 2021

	Jul '20 - Apr 21	Budget	\$ Over Budget	% of Budget
<b>Ordinary Income/Expense</b>				
<b>Income</b>				
5021-03 · Lost Lake Lease	0.00	0.00	0.00	0.0%
5022-03 · Mud Lake Lease	0.00	0.00	0.00	0.0%
5032-03 · Int. Inc.-LGIP-Floodplain	1,629.49	3,025.06	-1,395.57	53.9%
<b>Total Income</b>	1,629.49	3,025.06	-1,395.57	53.9%
<b>Expense</b>				
8009-01 · Reg. Flood Preliminary Planning	0.00	300,000.00	-300,000.00	0.0%
8009-02 · Flood Project Along SR88-Minden	40,000.00	40,000.00	0.00	100.0%
8009-03 · CVCD- 2017 Flood Permit/Repairs	0.00	0.00	0.00	0.0%
8009-04 · DVCD -2017 Flood Permit/Repairs	0.00	0.00	0.00	0.0%
8009-06 · TCID Flood Project	0.00	35,000.00	-35,000.00	0.0%
<b>Total Expense</b>	40,000.00	375,000.00	-335,000.00	10.7%
<b>Net Ordinary Income</b>	-38,370.51	-371,974.94	333,604.43	10.3%
<b>Other Income/Expense</b>				
<b>Other Income</b>				
8000-03 · Beginning Equity	0.00	403,341.00	-403,341.00	0.0%
8001-03 · Trans. In- General Fund	0.00	0.00	0.00	0.0%
<b>Total Other Income</b>	0.00	403,341.00	-403,341.00	0.0%
<b>Other Expense</b>				
8002-03 · Trans.Out-General Fund	0.00	0.00	0.00	0.0%
<b>Total Other Expense</b>	0.00	0.00	0.00	0.0%
<b>Net Other Income</b>	0.00	403,341.00	-403,341.00	0.0%
<b>Net Income</b>	<b>-38,370.51</b>	<b>31,366.06</b>	<b>-69,736.57</b>	<b>-122.3%</b>



11:54 AM  
05/02/21  
Cash Basis

**Floodplain Management Fund**  
**Profit & Loss YTD Comparison**  
April 2021

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	Apr 21	Jul '20 - Apr 21
Ordinary Income/Expense		
Income		
5032-03 · Int. Inc.-LGIP-Floodplain	68.86	1,629.49
Total Income	68.86	1,629.49
Expense		
8009-02 · Flood Project Along SR88-Minden	0.00	40,000.00
Total Expense	0.00	40,000.00
Net Ordinary Income	68.86	-38,370.51
Net Income	<b>68.86</b>	<b>-38,370.51</b>

**Balance Sheet**

As of April 30, 2021

	Apr 30, 21
<b>ASSETS</b>	
Current Assets	
Checking/Savings	
1013-01 · Local Gov't Inv.Pool-Reserve	929,817.64
Total Checking/Savings	929,817.64
Total Current Assets	929,817.64
<b>TOTAL ASSETS</b>	<b>929,817.64</b>
<b>LIABILITIES &amp; EQUITY</b>	
Equity	
4000-01 · Fund Balance - Capital Project	781,483.15
Net Income	148,334.49
Total Equity	929,817.64
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>929,817.64</b>

## Profit &amp; Loss Budget vs. Actual

July 2020 through April 2021

	Jul '20 - Apr 21	Budget	\$ Over Budget	% of Budget
Ordinary Income/Expense				
Income				
5032-01 · Interest Income - LGIP Res.	3,334.49	5,723.24	-2,388.75	58.3%
Total Income	3,334.49	5,723.24	-2,388.75	58.3%
Expense				
8015-03 · Upstream Storage Evaluation		33,648.00	-33,648.00	
8015-04 · Construction Projects		715,000.00	-715,000.00	
8015-05 · Right-A-Way Lyon Cty Utility SS		125,000.00	-125,000.00	
Total Expense		873,648.00	-873,648.00	
Net Ordinary Income	3,334.49	-867,924.76	871,259.25	-0.4%
Other Income/Expense				
Other Income				
8000-01 · Beginning Equity		763,099.00	-763,099.00	
8001-01 · Transfer In-General Fund	145,000.00	145,000.00		100.0%
Total Other Income	145,000.00	908,099.00	-763,099.00	16.0%
Net Other Income	145,000.00	908,099.00	-763,099.00	16.0%
Net Income	<u>148,334.49</u>	<u>40,174.24</u>	<u>108,160.25</u>	<u>369.2%</u>

**CARSON WTR SUBCONSERVANCY DIST - ACQUISITION/CONSTRUCTION**  
**Profit & Loss YTD Comparison**  
**April 2021**

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	<u>Apr 21</u>	<u>Jul '20 - Apr 21</u>
Ordinary Income/Expense		
Income		
5032-01 · Interest Income - LGIP Res.	174.59	3,334.49
Total Income	174.59	3,334.49
Net Ordinary Income	174.59	3,334.49
Other Income/Expense		
Other Income		
8001-01 · Transfer In-General Fund		145,000.00
Total Other Income		145,000.00
Net Other Income		145,000.00
Net Income	<u>174.59</u>	<u>148,334.49</u>

## CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

05/09/21

## Balance Sheet

Cash Basis

As of April 30, 2021

	Apr 30, 21
<b>ASSETS</b>	
Current Assets	
Checking/Savings	
1013-00 · Cash in Checking - U. S. Bank	166,273.35
1014-00 · Local Gov't Inv. Pool-Regular	804,582.56
1030-00 · Petty Cash	112.91
Total Checking/Savings	970,968.82
Other Current Assets	
1055-00 · Payroll Deposit - Carson City	500.00
Total Other Current Assets	500.00
Total Current Assets	971,468.82
<b>TOTAL ASSETS</b>	<b>971,468.82</b>
<b>LIABILITIES &amp; EQUITY</b>	
Liabilities	
Current Liabilities	
Other Current Liabilities	
3360-00 · Accrued Vacation	31,478.76
3362-00 · Accrued sick leave	60,630.90
Total Other Current Liabilities	92,109.66
Total Current Liabilities	92,109.66
Total Liabilities	92,109.66
Equity	
4000-00 · Fund Balance	569,853.62
Net Income	309,505.54
Total Equity	879,359.16
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>971,468.82</b>

## CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

05/09/21

## Profit &amp; Loss Budget vs. Actual

Cash Basis

July 2020 through April 2021

	Jul '20 - Apr 21	Budget	\$ Over Budget	% of Budget
<b>Ordinary Income/Expense</b>				
<b>Income</b>				
5008-00 · Alpine Co. Joint Powers contrib	10,897.74	10,897.74		100.0%
5009-00 · Churchill County Ad Valorem	197,857.54	218,984.88	-21,127.34	90.4%
5010-00 · Lyon County Ad Valorem	180,110.30	187,253.01	-7,142.71	96.2%
5011-00 · Douglas County Ad Valorem	607,273.19	617,790.62	-10,517.43	98.3%
5012-00 · Carson City Ad Valorem	410,674.27	458,361.52	-47,687.25	89.6%
5022-00 · Water Lease - Mud Lake		51,765.00	-51,765.00	
5023-00 · Water Lease-Lost Lakes	804.00		804.00	100.0%
5031-00 · Interest Income-LGIP Reg.	2,837.69	4,821.36	-1,983.67	58.9%
5050-00 · Watershed Coordinator Grant				
5050-13 · NDEP-WS Coord IV 2019-2022	38,757.52	164,800.00	-126,042.48	23.5%
<b>Total 5050-00 · Watershed Coordinator Grant</b>	<b>38,757.52</b>	<b>164,800.00</b>	<b>-126,042.48</b>	<b>23.5%</b>
5058-00 · 208 Water Quality Plan				
5058-04 · NDEP-LID Implementation 2018-20	10,013.22	3,900.00	6,113.22	256.7%
<b>Total 5058-00 · 208 Water Quality Plan</b>	<b>10,013.22</b>	<b>3,900.00</b>	<b>6,113.22</b>	<b>256.7%</b>
5060-00 · Misc. Income	13.04	6,000.00	-5,986.96	0.2%
5082-00 · Alpine Co.-CASGEM Grant		400.00	-400.00	
5083-00 · Al.Co.-Mesa GW Monitoring Grant	637.35		637.35	100.0%
5100-00 · NDEP -Drone Grant	17,903.47	18,165.00	-261.53	98.6%
6003-00 · FEMA-MAS #9	57,657.02	81,420.00	-23,762.98	70.8%
6004-00 · BOR WaterSMART Grant	31,180.30	53,078.00	-21,897.70	58.7%
6005-00 · FEMA - MAS # 10	227,394.29	319,590.00	-92,195.71	71.2%
6006-00 · FEMA-MAS #11	15,460.80		15,460.80	100.0%
<b>Total Income</b>	<b>1,809,471.74</b>	<b>2,197,227.13</b>	<b>-387,755.39</b>	<b>82.4%</b>
<b>Expense</b>				
7015-00 · Salaries & Wages	335,294.95	413,300.00	-78,005.05	81.1%
7020-00 · Employee Benefits	128,271.95	172,217.00	-43,945.05	74.5%
7021-00 · Workers Comp Ins.	288.29	2,300.00	-2,011.71	12.5%
7101-00 · Director's Fees				
7101-01 · Director Benefits	106.72	100.00	6.72	106.7%
7101-02 · Director's Fees-Alpine Co.	1,120.00	2,800.00	-1,680.00	40.0%
7101-00 · Director's Fees - Other	7,360.00	13,100.00	-5,740.00	56.2%
<b>Total 7101-00 · Director's Fees</b>	<b>8,586.72</b>	<b>16,000.00</b>	<b>-7,413.28</b>	<b>53.7%</b>
7102-00 · Insurance	4,934.79	5,100.00	-165.21	96.8%
7103-00 · Office Supplies	760.06	2,100.00	-1,339.94	36.2%
7104-00 · Postage	986.65	1,050.00	-63.35	94.0%
7105-00 · Rent	31,460.00	37,752.00	-6,292.00	83.3%
7106-00 · Telephone/Internet	5,033.07	5,000.00	33.07	100.7%
7107-00 · Travel-transport/meals/lodging				
7107-02 Staff Indirect Mileage	144.51		144.51	100.0%
7107-01 · Car Allowance	2,283.21		2,283.21	100.0%
7107-00 · Travel-transport/meals/lodging - Other	468.66	16,000.00	-15,531.34	2.9%
<b>Total 7107-00 · Travel-transport/meals/lodging</b>	<b>2,896.38</b>	<b>16,000.00</b>	<b>-13,103.62</b>	<b>18.1%</b>
7108-00 · Dues & Publications	1,397.00	1,100.00	297.00	127.0%
7109-00 · Miscellaneous Expense		1,000.00	-1,000.00	
7110-00 · Seminars & Education	464.99	1,500.00	-1,035.01	31.0%
7111-00 · Office Equipment	1,264.91	3,000.00	-1,735.09	42.2%
7112-00 · Bank Charges	31.86	50.00	-18.14	63.7%
7114-00 · Outside Professional Services	7,108.33	30,000.00	-22,891.67	23.7%
7115-00 · Accounting	14,818.00	16,800.00	-1,982.00	88.2%
7116-00 · Legal	18,000.00	32,000.00	-14,000.00	56.3%
7117-00 · Lost Lakes Expenses	9,132.65	13,500.00	-4,367.35	67.6%
7118-00 · Mud Lake O & M	1,034.51	1,200.00	-165.49	86.2%
7120-00 · Integrated Watershed Programs				
7120-07 · Watershed Tour		6,000.00	-6,000.00	

## CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

05/09/21

## Profit &amp; Loss Budget vs. Actual

Cash Basis

July 2020 through April 2021

	Jul '20 - Apr 21	Budget	\$ Over Budget	% of Budget
7120-33 · Watershed Coord IV 2019-22				
7120-34 · WS Coord Grant MATCH 2019-21				
7120-36 · WS COORD MATCH - Operations	660.00		660.00	100.0%
7120-37 · WS COORD MATCH - NEON	10,000.00		10,000.00	100.0%
7120-34 · WS Coord Grant MATCH 2019-21 - Other		9,900.00	-9,900.00	
Total 7120-34 · WS Coord Grant MATCH 2019-21	10,660.00	9,900.00	760.00	107.7%
7120-38 · WS COORD-REIMBURSABLE				
7120-39 · WS COORD REIMB - Travel	94.30		94.30	100.0%
Total 7120-38 · WS COORD-REIMBURSABLE	94.30		94.30	100.0%
7120-33 · Watershed Coord IV 2019-22 - Other	976.64	49,200.00	-48,223.36	2.0%
Total 7120-33 · Watershed Coord IV 2019-22	11,730.94	59,100.00	-47,369.06	19.8%
Total 7120-00 · Integrated Watershed Programs	11,730.94	65,100.00	-53,369.06	18.0%
7126-00 · NDEP Drone Sub-Grant 2020	372.34	305.00	67.34	122.1%
7215-00 · Sierra NV Journeys-Family Night				
7215-01 · SNJ 2020-21		3,279.00	-3,279.00	
Total 7215-00 · Sierra NV Journeys-Family Night		3,279.00	-3,279.00	
7332-00 · Carson River Work Days				
7332-06 · CR Work Days 2020-21	7,096.59	26,000.00	-18,903.41	27.3%
Total 7332-00 · Carson River Work Days	7,096.59	26,000.00	-18,903.41	27.3%
7337-00 · Carson River Restoration				
7337-01 · Carson Valley Conserv District				
7337-20 · CVCD Genoa Bank EXTENDED	80,522.67	70,000.00	10,522.67	115.0%
7337-25 · CVCD - Bioengineering 2020-21	34,156.52	65,000.00	-30,843.48	52.5%
7337-26 · CVCD - Westwood Channel 2020-21	37,282.85	100,000.00	-62,717.15	37.3%
Total 7337-01 · Carson Valley Conserv District	151,962.04	235,000.00	-83,037.96	64.7%
7337-03 · Dayton Valley Conserv				
7337-34 · DVCD Bank Stab/Dayton Br (EXT)		40,000.00	-40,000.00	
7337-36 · DVCD - Fort Churchill 2020-21		75,000.00	-75,000.00	
Total 7337-03 · Dayton Valley Conserv		115,000.00	-115,000.00	
7337-04 · Lahontan Conserv.Dist				
7337-43 · LCD- Clearing & Snagging 20-21		20,000.00	-20,000.00	
Total 7337-04 · Lahontan Conserv.Dist		20,000.00	-20,000.00	
Total 7337-00 · Carson River Restoration	151,962.04	370,000.00	-218,037.96	41.1%
7404-00 · Noxious Weeds Control-CR Wtrshd		75,000.00	-75,000.00	
7406-00 · 208 Water Quality Mgmt. Plan				
7406-03 · LID Implementation 2018-12/2020	7,689.88		7,689.88	100.0%
7406-00 · 208 Water Quality Mgmt. Plan - Other		1,210.00	-1,210.00	
Total 7406-00 · 208 Water Quality Mgmt. Plan	7,689.88	1,210.00	6,479.88	635.5%
7437-00 · FEMA MAS #9				
7437-05 · HEC-RAS Modeling(HDR)	3,524.80		3,524.80	100.0%
7437-01 · South Dayton Valley ADMP(JEF)	9,061.86		9,061.86	100.0%
7437-02 · North CC ADMP (MB)	4,589.07		4,589.07	100.0%
7437-03 · Pinenut Cr. Restudy-Remap.(HDR)	12,299.71		12,299.71	100.0%
7437-04 · Flood Awareness	4,000.00		4,000.00	100.0%
7437-00 · FEMA MAS #9 - Other	119.49	66,824.00	-66,704.51	0.2%
Total 7437-00 · FEMA MAS #9	33,594.93	66,824.00	-33,229.07	50.3%
7438-00 · BOR WaterSMART Market Program				
7438-01 · Water Mktg Study-LUMOS 2019-21				

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## CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

05/09/21

## Profit &amp; Loss Budget vs. Actual

Cash Basis

July 2020 through April 2021

	Jul '20 - Apr 21	Budget	\$ Over Budget	% of Budget
7438-02 · BOR WaterSmart-LUMOS MATCH	16,259.70		16,259.70	100.0%
7438-01 · Water Mktg Study-LUMOS 2019-21 - Other	30,761.80	53,078.00	-22,316.20	58.0%
Total 7438-01 · Water Mktg Study-LUMOS 2019-21	47,021.50	53,078.00	-6,056.50	88.6%
Total 7438-00 · BOR WaterSMART Market Program	47,021.50	53,078.00	-6,056.50	88.6%
7439-00 · FEMA MAS #10				
7439-01 · Carson Valley Flood Model (HDR)	5,716.94		5,716.94	100.0%
7439-02 · West CC Study (Kimley-Horn)	69,544.57		69,544.57	100.0%
7439-03 · RuhenStroth ADMP (Fuller)	26,979.65		26,979.65	100.0%
7439-04 · Ch Cty Flood Maps (Precision)	1,107.50		1,107.50	100.0%
7439-05 · Ch Cty Flood Maps (HDR)	107,580.01		107,580.01	100.0%
7439-00 · FEMA MAS #10 - Other	1,060.48	297,642.00	-296,581.52	0.4%
Total 7439-00 · FEMA MAS #10	211,989.15	297,642.00	-85,652.85	71.2%
7440-00 · FEMA - MAS #11	109.31		109.31	100.0%
7500-00 · USGS Stream Gage Contract				
7500-03 · USGS Stream Flow Gauges 2019-21	58,804.34		58,804.34	100.0%
7500-00 · USGS Stream Gage Contract - Other		78,405.00	-78,405.00	
Total 7500-00 · USGS Stream Gage Contract	58,804.34	78,405.00	-19,600.66	75.0%
7508-00 · USGS Do.Co.WQ & GW Monitoring				
7508-03 · DoCo WQ/GW Mon. 2019-21	12,667.84	16,890.00	-4,222.16	75.0%
Total 7508-00 · USGS Do.Co.WQ & GW Monitoring	12,667.84	16,890.00	-4,222.16	75.0%
7524-00 · USGS-GW Lvl & WQ in Ch.Co.				
7524-02 · USGS-GW Lvl & WQ-ChCo 2018-22	2,850.00	5,680.00	-2,830.00	50.2%
Total 7524-00 · USGS-GW Lvl & WQ in Ch.Co.	2,850.00	5,680.00	-2,830.00	50.2%
7526-01 · USGS Middle Carson GW 2020-21	7,625.00	15,250.00	-7,625.00	50.0%
7600-00 · Alpine County Projects				
7600-09 · Al.Co.-CASGEM		5.00	-5.00	
7600-10 · Al.Co.-Mesa GW Monitoring	40.32		40.32	100.0%
7600-12 · AWG Programs 2020-21	12,500.00	25,000.00	-12,500.00	50.0%
Total 7600-00 · Alpine County Projects	12,540.32	25,005.00	-12,464.68	50.2%
7610-00 · Douglas County Projects				
7610-10 · Do.Co.Reg.Pipeline Debt Service	125,000.00	125,000.00		100.0%
Total 7610-00 · Douglas County Projects	125,000.00	125,000.00		100.0%
7620-00 · Carson City Projects				
7620-11 · CC Reg.Pipeline Debt Service	62,500.00	125,000.00	-62,500.00	50.0%
Total 7620-00 · Carson City Projects	62,500.00	125,000.00	-62,500.00	50.0%
7640-00 · Churchill County Projects				
7640-09 · Lahontan Vly.Wtr.Lvl. 2018-21	12,110.00	20,000.00	-7,890.00	60.6%
7640-18 · Dixie Vlt Wtr Lvl Meas 2019-22	17,536.91	21,000.00	-3,463.09	83.5%
7640-19 · TCID-Diversion Dam Gates 20-21		15,000.00	-15,000.00	
Total 7640-00 · Churchill County Projects	29,646.91	56,000.00	-26,353.09	52.9%
Total Expense	1,354,966.20	2,176,637.00	-821,670.80	62.3%
Net Ordinary Income	454,505.54	20,590.13	433,915.41	2,207.4%
Other Income/Expense				
Other Income				
8005-00 · Beginning Equity		642,848.30	-642,848.30	
Total Other Income		642,848.30	-642,848.30	
Other Expense				
8002-00 · Transfer Out-Acq/Const Fund	145,000.00	145,000.00		100.0%

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CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

05/09/21

Profit & Loss Budget vs. Actual

Cash Basis

July 2020 through April 2021

	Jul '20 - Apr 21	Budget	\$ Over Budget	% of Budget
8008-00 - Preliminary Planning		385,000.00	-385,000.00	
Total Other Expense	145,000.00	530,000.00	-385,000.00	27.4%
Net Other Income	-145,000.00	112,848.30	-257,848.30	-128.5%
Net Income	309,505.54	133,438.43	176,067.11	231.9%

## CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

05/09/21

## Profit &amp; Loss Budget vs. Actual

Cash Basis

July 2020 through April 2021

	Jul '20 - Apr 21	Budget	\$ Over Budget	% of Budget
<b>Ordinary Income/Expense</b>				
<b>Income</b>				
5008-00 · Alpine Co. Joint Powers contrib	10,897.74	10,897.74		100.0%
5009-00 · Churchill County Ad Valorem	197,857.54	218,984.88	-21,127.34	90.4%
5010-00 · Lyon County Ad Valorem	180,110.30	187,253.01	-7,142.71	96.2%
5011-00 · Douglas County Ad Valorem	607,273.19	617,790.62	-10,517.43	98.3%
5012-00 · Carson City Ad Valorem	410,674.27	458,361.52	-47,687.25	89.6%
5022-00 · Water Lease - Mud Lake		51,765.00	-51,765.00	
5023-00 · Water Lease-Lost Lakes	804.00		804.00	100.0%
5031-00 · Interest Income-LGIP Reg.	2,837.69	4,821.36	-1,983.67	58.9%
5050-00 · Watershed Coordinator Grant				
5050-13 · NDEP-WS Coord IV 2019-2022	38,757.52	164,800.00	-126,042.48	23.5%
<b>Total 5050-00 · Watershed Coordinator Grant</b>	<b>38,757.52</b>	<b>164,800.00</b>	<b>-126,042.48</b>	<b>23.5%</b>
5058-00 · 208 Water Quality Plan				
5058-04 · NDEP-LID Implementation 2018-20	10,013.22	3,900.00	6,113.22	256.7%
<b>Total 5058-00 · 208 Water Quality Plan</b>	<b>10,013.22</b>	<b>3,900.00</b>	<b>6,113.22</b>	<b>256.7%</b>
5060-00 · Misc. Income	13.04	6,000.00	-5,986.96	0.2%
5082-00 · Alpine Co.-CASGEM Grant		400.00	-400.00	
5083-00 · Al.Co.-Mesa GW Monitoring Grant	637.35		637.35	100.0%
5100-00 · NDEP -Drone Grant	17,903.47	18,165.00	-261.53	98.6%
6003-00 · FEMA-MAS #9	57,657.02	81,420.00	-23,762.98	70.8%
6004-00 · BOR WaterSMART Grant	31,180.30	53,078.00	-21,897.70	58.7%
6005-00 · FEMA - MAS # 10	227,394.29	319,590.00	-92,195.71	71.2%
6006-00 · FEMA-MAS #11	15,460.80		15,460.80	100.0%
<b>Total Income</b>	<b>1,809,471.74</b>	<b>2,197,227.13</b>	<b>-387,755.39</b>	<b>82.4%</b>
<b>Expense</b>				
7015-00 · Salaries & Wages	335,294.95	413,300.00	-78,005.05	81.1%
7020-00 · Employee Benefits	128,271.95	172,217.00	-43,945.05	74.5%
7021-00 · Workers Comp Ins.	288.29	2,300.00	-2,011.71	12.5%
7101-00 · Director's Fees				
7101-01 · Director Benefits	106.72	100.00	6.72	106.7%
7101-02 · Director's Fees-Alpine Co.	1,120.00	2,800.00	-1,680.00	40.0%
7101-00 · Director's Fees - Other	7,360.00	13,100.00	-5,740.00	56.2%
<b>Total 7101-00 · Director's Fees</b>	<b>8,586.72</b>	<b>16,000.00</b>	<b>-7,413.28</b>	<b>53.7%</b>
7102-00 · Insurance	4,934.79	5,100.00	-165.21	96.8%
7103-00 · Office Supplies	760.06	2,100.00	-1,339.94	36.2%
7104-00 · Postage	986.65	1,050.00	-63.35	94.0%
7105-00 · Rent	31,460.00	37,752.00	-6,292.00	83.3%
7106-00 · Telephone/Internet	5,033.07	5,000.00	33.07	100.7%
7107-00 · Travel-transport/meals/lodging				
7107-02 Staff Indirect Mileage	144.51		144.51	100.0%
7107-01 · Car Allowance	2,283.21		2,283.21	100.0%
7107-00 · Travel-transport/meals/lodging - Other	468.66	16,000.00	-15,531.34	2.9%
<b>Total 7107-00 · Travel-transport/meals/lodging</b>	<b>2,896.38</b>	<b>16,000.00</b>	<b>-13,103.62</b>	<b>18.1%</b>
7108-00 · Dues & Publications	1,397.00	1,100.00	297.00	127.0%
7109-00 · Miscellaneous Expense		1,000.00	-1,000.00	
7110-00 · Seminars & Education	464.99	1,500.00	-1,035.01	31.0%
7111-00 · Office Equipment	1,264.91	3,000.00	-1,735.09	42.2%
7112-00 · Bank Charges	31.86	50.00	-18.14	63.7%
7114-00 · Outside Professional Services	7,108.33	30,000.00	-22,891.67	23.7%
7115-00 · Accounting	14,818.00	16,800.00	-1,982.00	88.2%
7116-00 · Legal	18,000.00	32,000.00	-14,000.00	56.3%
7117-00 · Lost Lakes Expenses	9,132.65	13,500.00	-4,367.35	67.6%
7118-00 · Mud Lake O & M	1,034.51	1,200.00	-165.49	86.2%
7120-00 · Integrated Watershed Programs				
7120-07 · Watershed Tour		6,000.00	-6,000.00	

**CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND**

**Profit & Loss Budget vs. Actual**

July 2020 through April 2021

	Jul '20 - Apr 21	Budget	\$ Over Budget	% of Budget
7120-33 · Watershed Coord IV 2019-22				
7120-34 · WS Coord Grant MATCH 2019-21				
7120-36 · WS COORD MATCH - Operations	660.00		660.00	100.0%
7120-37 · WS COORD MATCH - NEON	10,000.00		10,000.00	100.0%
7120-34 · WS Coord Grant MATCH 2019-21 - Other		9,900.00	-9,900.00	
Total 7120-34 · WS Coord Grant MATCH 2019-21	10,660.00	9,900.00	760.00	107.7%
7120-38 · WS COORD-REIMBURSABLE				
7120-39 · WS COORD REIMB - Travel	94.30		94.30	100.0%
Total 7120-38 · WS COORD-REIMBURSABLE	94.30		94.30	100.0%
7120-33 · Watershed Coord IV 2019-22 - Other	976.64	49,200.00	-48,223.36	2.0%
Total 7120-33 · Watershed Coord IV 2019-22	11,730.94	59,100.00	-47,369.06	19.8%
Total 7120-00 · Integrated Watershed Programs	11,730.94	65,100.00	-53,369.06	18.0%
7126-00 · NDEP Drone Sub-Grant 2020	372.34	305.00	67.34	122.1%
7215-00 · Sierra NV Journeys-Family Night				
7215-01 · SNJ 2020-21		3,279.00	-3,279.00	
Total 7215-00 · Sierra NV Journeys-Family Night		3,279.00	-3,279.00	
7332-00 · Carson River Work Days				
7332-06 · CR Work Days 2020-21	7,096.59	26,000.00	-18,903.41	27.3%
Total 7332-00 · Carson River Work Days	7,096.59	26,000.00	-18,903.41	27.3%
7337-00 · Carson River Restoration				
7337-01 · Carson Valley Conserv District				
7337-20 · CVCD Genoa Bank EXTENDED	80,522.67	70,000.00	10,522.67	115.0%
7337-25 · CVCD - Bioengineering 2020-21	34,156.52	65,000.00	-30,843.48	52.5%
7337-26 · CVCD - Westwood Channel 2020-21	37,282.85	100,000.00	-62,717.15	37.3%
Total 7337-01 · Carson Valley Conserv District	151,962.04	235,000.00	-83,037.96	64.7%
7337-03 · Dayton Valley Conserv				
7337-34 · DVCD Bank Stab/Dayton Br (EXT)		40,000.00	-40,000.00	
7337-36 · DVCD - Fort Churchill 2020-21		75,000.00	-75,000.00	
Total 7337-03 · Dayton Valley Conserv		115,000.00	-115,000.00	
7337-04 · Lahontan Conserv.Dist				
7337-43 · LCD- Clearing & Snagging 20-21		20,000.00	-20,000.00	
Total 7337-04 · Lahontan Conserv.Dist		20,000.00	-20,000.00	
Total 7337-00 · Carson River Restoration	151,962.04	370,000.00	-218,037.96	41.1%
7404-00 · Noxious Weeds Control-CR Wtrshd		75,000.00	-75,000.00	
7406-00 · 208 Water Quality Mgmt. Plan				
7406-03 · LID Implementation 2018-12/2020	7,689.88		7,689.88	100.0%
7406-00 · 208 Water Quality Mgmt. Plan - Other		1,210.00	-1,210.00	
Total 7406-00 · 208 Water Quality Mgmt. Plan	7,689.88	1,210.00	6,479.88	635.5%
7437-00 · FEMA MAS #9				
7437-05 HEC-RAS Modeling(HDR)	3,524.80		3,524.80	100.0%
7437-01 · South Dayton Valley ADMP(JEF)	9,061.86		9,061.86	100.0%
7437-02 · North CC ADMP (MB)	4,589.07		4,589.07	100.0%
7437-03 · Pinenut Cr. Restudy-Remap.(HDR)	12,299.71		12,299.71	100.0%
7437-04 · Flood Awareness	4,000.00		4,000.00	100.0%
7437-00 · FEMA MAS #9 - Other	119.49	66,824.00	-66,704.51	0.2%
Total 7437-00 · FEMA MAS #9	33,594.93	66,824.00	-33,229.07	50.3%
7438-00 · BOR WaterSMART Market Program				
7438-01 · Water Mktg Study-LUMOS 2019-21				

## CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

05/09/21

## Profit &amp; Loss Budget vs. Actual

Cash Basis

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7438-01 · Water Mktg Study-LUMOS 2019-21 - Other	30,761.80	53,078.00	-22,316.20	58.0%
Total 7438-01 · Water Mktg Study-LUMOS 2019-21	47,021.50	53,078.00	-6,056.50	88.6%
Total 7438-00 · BOR WaterSMART Market Program	47,021.50	53,078.00	-6,056.50	88.6%
7439-00 · FEMA MAS #10				
7439-01 · Carson Valley Flood Model (HDR)	5,716.94		5,716.94	100.0%
7439-02 · West CC Study (Kimley-Horn)	69,544.57		69,544.57	100.0%
7439-03 · RuhenStroth ADMP (Fuller)	26,979.65		26,979.65	100.0%
7439-04 · Ch Cty Flood Maps (Precision)	1,107.50		1,107.50	100.0%
7439-05 · Ch Cty Flood Maps (HDR)	107,580.01		107,580.01	100.0%
7439-00 · FEMA MAS #10 - Other	1,060.48	297,642.00	-296,581.52	0.4%
Total 7439-00 · FEMA MAS #10	211,989.15	297,642.00	-85,652.85	71.2%
7440-00 · FEMA - MAS #11	109.31		109.31	100.0%
7500-00 · USGS Stream Gage Contract				
7500-03 · USGS Stream Flow Gauges 2019-21	58,804.34		58,804.34	100.0%
7500-00 · USGS Stream Gage Contract - Other		78,405.00	-78,405.00	
Total 7500-00 · USGS Stream Gage Contract	58,804.34	78,405.00	-19,600.66	75.0%
7508-00 · USGS Do.Co.WQ & GW Monitoring				
7508-03 · DoCo WQ/GW Mon. 2019-21	12,667.84	16,890.00	-4,222.16	75.0%
Total 7508-00 · USGS Do.Co.WQ & GW Monitoring	12,667.84	16,890.00	-4,222.16	75.0%
7524-00 · USGS-GW Lvl & WQ in Ch.Co.				
7524-02 · USGS-GW Lvl & WQ-ChCo 2018-22	2,850.00	5,680.00	-2,830.00	50.2%
Total 7524-00 · USGS-GW Lvl & WQ in Ch.Co.	2,850.00	5,680.00	-2,830.00	50.2%
7526-01 · USGS Middle Carson GW 2020-21	7,625.00	15,250.00	-7,625.00	50.0%
7600-00 · Alpine County Projects				
7600-09 · Al.Co.-CASGEM		5.00	-5.00	
7600-10 · Al.Co.-Mesa GW Monitoring	40.32		40.32	100.0%
7600-12 · AWG Programs 2020-21	12,500.00	25,000.00	-12,500.00	50.0%
Total 7600-00 · Alpine County Projects	12,540.32	25,005.00	-12,464.68	50.2%
7610-00 · Douglas County Projects				
7610-10 · Do.Co.Reg.Pipeline Debt Service	125,000.00	125,000.00		100.0%
Total 7610-00 · Douglas County Projects	125,000.00	125,000.00		100.0%
7620-00 · Carson City Projects				
7620-11 · CC Reg.Pipeline Debt Service	62,500.00	125,000.00	-62,500.00	50.0%
Total 7620-00 · Carson City Projects	62,500.00	125,000.00	-62,500.00	50.0%
7640-00 · Churchill County Projects				
7640-09 · Lahontan Vly.Wtr.Lvl. 2018-21	12,110.00	20,000.00	-7,890.00	60.6%
7640-18 · Dixie Vlt Wtr Lvl Meas 2019-22	17,536.91	21,000.00	-3,463.09	83.5%
7640-19 · TCID-Diversion Dam Gates 20-21		15,000.00	-15,000.00	
Total 7640-00 · Churchill County Projects	29,646.91	56,000.00	-26,353.09	52.9%
Total Expense	1,354,966.20	2,176,637.00	-821,670.80	62.3%
Net Ordinary Income	454,505.54	20,590.13	433,915.41	2,207.4%
Other Income/Expense				
Other Income				
8005-00 · Beginning Equity		642,848.30	-642,848.30	
Total Other Income		642,848.30	-642,848.30	
Other Expense				
8002-00 · Transfer Out-Acq/Const Fund	145,000.00	145,000.00		100.0%

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## CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

05/09/21

## Profit &amp; Loss Budget vs. Actual

Cash Basis

July 2020 through April 2021

	Jul '20 - Apr 21	Budget	\$ Over Budget	% of Budget
8008-00 · Preliminary Planning		385,000.00	-385,000.00	
Total Other Expense	145,000.00	530,000.00	-385,000.00	27.4%
Net Other Income	-145,000.00	112,848.30	-257,848.30	-128.5%
Net Income	<u>309,505.54</u>	<u>133,438.43</u>	<u>176,067.11</u>	<u>231.9%</u>

## **AGENDA ITEM #8**

### **PAYMENT OF BILLS**



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05/02/21

Cash Basis

## CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

## Transaction Detail by Account

April 2021

Type	Date	Num	Name	Memo	Paid Amount	Balance
<b>1013-00 · Cash in Checking - U. S. Bank</b>						
Check	04/01/2021	10215	Euronev, Ltd.	April 2021 Rent	-3,146.00	-3,146.00
Deposit	04/01/2021			Deposit	59,268.70	56,122.70
Check	04/04/2021	10216	King & Russo, Ltd.	Professional Services MAR 2021	-2,000.00	54,122.70
Check	04/04/2021	10217	Churchill County	Oct-Dec 2020, Lahontan Vly. & Dixie Vly. Wtr. Lvl. ...	-12,771.91	41,350.79
Check	04/04/2021	10218	Carson City	CWSD Payroll #7	-24,522.43	16,828.36
Check	04/11/2021	10219	USDA Forest Service	BFO41701AB088	-165.74	16,662.62
Check	04/11/2021	10220	NEON Agency	Inv#1426	-5,500.00	11,162.62
Check	04/11/2021	10221	Konica Minolta Business Solutions U...	Acct#3091	-136.06	11,026.56
Check	04/11/2021	10222	HDR Engineering, Inc.	Inv. #1200338140	-3,524.80	7,501.76
Check	04/11/2021	10223	Kimley-Horn & Associates, Inc.	Inv.#18542163 Project #291417000.1	-5,755.00	1,746.76
Check	04/12/2021	10224	Lumos & Assoc., Inc.	Inv#108018 Proj#9834	-7,423.40	-5,676.64
Check	04/15/2021	10225	HDR Engineering, Inc.	Inv. #1200341310	-9,057.47	-14,734.11
Deposit	04/16/2021			Deposit	98,532.05	83,797.94
Check	04/18/2021	ACH	Nevada Retail Network SIG	1st Qtr Report -Workers Comp	-288.29	83,509.65
Check	04/18/2021	10226	Discover Lake Tahoe	Contract #2425	-660.00	82,849.65
Check	04/18/2021	10227	Division of Water Resources	License Renewal #1134	-20.00	82,829.65
Check	04/18/2021	10228	Carson City	CWSD Payroll #8	-22,173.11	60,656.54
Check	04/18/2021	ACH	U.S. Geological Survey	Qtrly Pymt JFA #18WSNV00134	-692.50	59,964.04
Check	04/18/2021	ACH	U.S. Geological Survey	Qtrly Pymt JFA #19ZJJFA00127	-19,601.67	40,362.37
Check	04/18/2021	ACH	U.S. Geological Survey	Qtrly Pymt JFA #19ZJJFA00128	-4,222.67	36,139.70
Check	04/18/2021	ACH	U.S. Geological Survey	Qtrly Pymt JFA #20ZJJFA00128	-3,812.50	32,327.20
Deposit	04/19/2021			Deposit	11,350.60	43,677.80
Deposit	04/19/2021			Deposit	25,706.07	69,383.87
Check	04/22/2021	10229	Local Govt Investment Pool	for investment in CCWSD	-40,000.00	29,383.87
Check	04/25/2021	10230	Charter Communications	Acct#8354110010917880	-359.94	29,023.93
Check	04/25/2021	10231	Office Depot Business Credit	Acct #6011 5685 11775 7761	-33.77	28,990.16
Check	04/25/2021	10232	Truckee Meadows Parks Foundation	Americorps Inv #191	-3,400.00	25,590.16
Check	04/25/2021	10233	Churchill County	Jan-Mar 2021, Lahontan Vly. & Dixie Vly. Wtr. Lvl. ...	-8,670.00	16,920.16
Deposit	04/28/2021			Deposit	46,105.32	63,025.48
Check	04/30/2021	10234	Bank of America	APR 2021; Acct. #4024 4910 0003 3949	-468.30	62,557.18
Check	04/30/2021	10235	Carson City	CWSD Payroll #9	-20,205.82	42,351.36
Total 1013-00 · Cash in Checking - U. S. Bank					42,351.36	42,351.36
<b>1014-00 · Local Gov't Inv. Pool-Regular</b>						
Deposit	04/01/2021			Interest	143.56	143.56
Check	04/22/2021	10229	Local Govt Investment Pool	for investment in CCWSD	40,000.00	40,143.56
Total 1014-00 · Local Gov't Inv. Pool-Regular					40,143.56	40,143.56
<b>1030-00 · Petty Cash</b>						
General Jo...	04/30/2021			Debbie Neddenriep - Copies	0.40	0.40
General Jo...	04/30/2021			Debbie Neddenriep - Dish Soap	-4.29	-3.89
Total 1030-00 · Petty Cash					-3.89	-3.89
<b>3307-00 · CC Payroll Due</b>						
Check	04/04/2021	10218	Carson City	Payroll #7 (3/12/2021-3/25/2021)	24,522.43	24,522.43
General Jo...	04/18/2021			Payroll #8 (3/26/21/2021-4/8/2021)	-22,173.11	2,349.32
Check	04/18/2021	10228	Carson City	Payroll #8 (3/26/2021-4/8/2021)	22,173.11	24,522.43
General Jo...	04/30/2021			Payroll #9 (4/9/2021-4/22/2021)	-20,205.82	4,316.61
Check	04/30/2021	10235	Carson City	Payroll #9 (4/9/2021-4/22/2021)	20,205.82	24,522.43
Total 3307-00 · CC Payroll Due					24,522.43	24,522.43
<b>5009-00 · Churchill County Ad Valorem</b>						
Deposit	04/16/2021	125841	Churchill County	3rd Qtr Ad Valorem Taxes	-58,242.03	-58,242.03
Total 5009-00 · Churchill County Ad Valorem					-58,242.03	-58,242.03
<b>5010-00 · Lyon County Ad Valorem</b>						
Deposit	04/28/2021	153485	Lyon County	3rd Qtr. Ad Valorem Taxes	-46,105.32	-46,105.32
Total 5010-00 · Lyon County Ad Valorem					-46,105.32	-46,105.32
<b>5011-00 · Douglas County Ad Valorem</b>						
Deposit	04/16/2021	715873	Douglas County	MAR Ad Valorem Taxes	-40,290.02	-40,290.02
Total 5011-00 · Douglas County Ad Valorem					-40,290.02	-40,290.02
<b>5012-00 · Carson City Ad Valorem</b>						
Deposit	04/01/2021	90308...	Carson City	FEB Ad Valorem Taxes	-59,066.47	-59,066.47
Total 5012-00 · Carson City Ad Valorem					-59,066.47	-59,066.47
<b>5031-00 · Interest Income-LGIP Reg.</b>						
Deposit	04/01/2021			Interest	-143.56	-143.56
Total 5031-00 · Interest Income-LGIP Reg.					-143.56	-143.56
<b>6003-00 · FEMA-MAS #9</b>						

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## CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

05/02/21

## Transaction Detail by Account

Cash Basis

April 2021

Type	Date	Num	Name	Memo	Paid Amount	Balance
Deposit	04/19/2021		FEMA	Draw 25	-4,746.77	-4,746.77
Total 6003-00 · FEMA-MAS #9					-4,746.77	-4,746.77
<b>6004-00 · BOR WaterSMART Grant</b>						
Deposit	04/19/2021		US Bureau of Reclamation/ASAP	Inv #7 Jan-Mar 2021	-11,350.60	-11,350.60
Total 6004-00 · BOR WaterSMART Grant					-11,350.60	-11,350.60
<b>6005-00 · FEMA - MAS # 10</b>						
Deposit	04/19/2021		FEMA	Draw 17	-15,724.45	-15,724.45
Total 6005-00 · FEMA - MAS # 10					-15,724.45	-15,724.45
<b>6006-00 · FEMA-MAS #11</b>						
Deposit	04/19/2021		FEMA	Draw 3	-5,234.85	-5,234.85
Total 6006-00 · FEMA-MAS #11					-5,234.85	-5,234.85
<b>7015-00 · Salaries &amp; Wages</b>						
General Jo...	04/18/2021			Salary Payroll #8 Fryer	2,829.72	2,829.72
General Jo...	04/18/2021			Salary Payroll #8 Hunt	2,672.93	5,502.65
General Jo...	04/18/2021			Salary Payroll #8 James	5,643.70	11,146.35
General Jo...	04/18/2021			Salary Payroll #8 Neddenriep	2,128.58	13,274.93
General Jo...	04/18/2021			Salary Payroll #8 Schambra	2,432.70	15,707.63
General Jo...	04/30/2021			Salary Payroll #9 Fryer	2,484.69	18,192.32
General Jo...	04/30/2021			Salary Payroll #9 Hunt	3,203.43	21,395.75
General Jo...	04/30/2021			Salary Payroll #9 James	5,643.70	27,039.45
General Jo...	04/30/2021			Salary Payroll #9 Neddenriep	2,046.08	29,085.53
General Jo...	04/30/2021			Salary Payroll #9 Schambra	2,432.71	31,518.24
Total 7015-00 · Salaries & Wages					31,518.24	31,518.24
<b>7020-00 · Employee Benefits</b>						
General Jo...	04/18/2021			Benies Payroll #8 Fryer	450.26	450.26
General Jo...	04/18/2021			Benies Payroll #8 Hunt	1,364.04	1,814.30
General Jo...	04/18/2021			Benies Payroll #8 James	2,298.89	4,113.19
General Jo...	04/18/2021			Benies Payroll #8 Neddenriep	1,056.25	5,169.44
General Jo...	04/18/2021			Benies Payroll #8 Schambra	1,046.04	6,215.48
General Jo...	04/30/2021			Benies Payroll #9 Fryer	392.65	6,608.13
General Jo...	04/30/2021			Benies Payroll #9 Hunt	983.45	7,591.58
General Jo...	04/30/2021			Benies Payroll #9 James	1,736.24	9,327.82
General Jo...	04/30/2021			Benies Payroll #9 Neddenriep	626.61	9,954.43
General Jo...	04/30/2021			Benies Payroll #9 Schambra	406.26	10,360.69
Total 7020-00 · Employee Benefits					10,360.69	10,360.69
<b>7021-00 · Workers Comp Ins.</b>						
Check	04/18/2021	ACH	Nevada Retail Network SIG	1st Qtr Report	288.29	288.29
Total 7021-00 · Workers Comp Ins.					288.29	288.29
<b>7101-00 · Director's Fees</b>						
<b>7101-01 · Director Benefits</b>						
General Jo...	04/18/2021			Director Benies Payroll #8 Gardner		
General Jo...	04/18/2021			Director Benies Payroll #8 Giomi		
General Jo...	04/18/2021			Director Benies Payroll #8 Gray		
General Jo...	04/18/2021			Director Benies Payroll #8 Jacobs		
General Jo...	04/18/2021			Director Benies Payroll #8 Nelson		
General Jo...	04/18/2021			Director Benies Payroll #8 Olsen		
General Jo...	04/18/2021			Director Benies Payroll #8 Schank		
General Jo...	04/18/2021			Director Benies Payroll #8 Schuette		
General Jo...	04/18/2021			Director Benies Payroll #8 Stodieck		
General Jo...	04/18/2021			Director Benies Payroll #8 Workman		
General Jo...	04/30/2021			Director Benies Payroll #9 Gardner		
General Jo...	04/30/2021			Director Benies Payroll #9 Giomi		
General Jo...	04/30/2021			Director Benies Payroll #9 Gray		
General Jo...	04/30/2021			Director Benies Payroll #9 Jacobs		
General Jo...	04/30/2021			Director Benies Payroll #9 Nelson		
General Jo...	04/30/2021			Director Benies Payroll #9 Olsen		
General Jo...	04/30/2021			Director Benies Payroll #9 Schank		
General Jo...	04/30/2021			Director Benies Payroll #9 Schuette		
General Jo...	04/30/2021			Director Benies Payroll #9 Stodieck		
General Jo...	04/30/2021			Director Benies Payroll #9 Workman		
Total 7101-01 · Director Benefits						
<b>7101-00 · Director's Fees - Other</b>						
General Jo...	04/18/2021			Director Fee Payroll #8 Gardner		
General Jo...	04/18/2021			Director Fee Payroll #8 Giomi		
General Jo...	04/18/2021			Director Fee Payroll #8 Gray		

For internal &amp; discussion purposes only.

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Cash Basis

CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

Transaction Detail by Account

April 2021

Type	Date	Num	Name	Memo	Paid Amount	Balance
General Jo...	04/18/2021			Director Fee Payroll #8 Jacobs		
General Jo...	04/18/2021			Director Fee Payroll #8 Nelson		
General Jo...	04/18/2021			Director Fee Payroll #8 Olsen		
General Jo...	04/18/2021			Director Fee Payroll #8 Schank		
General Jo...	04/18/2021			Director Fee Payroll #8 Schuette		
General Jo...	04/18/2021			Director Fee Payroll #8 Stodieck		
General Jo...	04/18/2021			Director Fee Payroll #8 Workman		
General Jo...	04/30/2021			Director Fee Payroll #9 Gardner		
General Jo...	04/30/2021			Director Fee Payroll #9 Giomi		
General Jo...	04/30/2021			Director Fee Payroll #9 Gray		
General Jo...	04/30/2021			Director Fee Payroll #9 Jacobs		
General Jo...	04/30/2021			Director Fee Payroll #9 Nelson		
General Jo...	04/30/2021			Director Fee Payroll #9 Olsen		
General Jo...	04/30/2021			Director Fee Payroll #9 Schank		
General Jo...	04/30/2021			Director Fee Payroll #9 Schuette		
General Jo...	04/30/2021			Director Fee Payroll #9 Stodieck		
General Jo...	04/30/2021			Director Fee Payroll #9 Workman		
Total 7101-00 · Director's Fees - Other						
Total 7101-00 · Director's Fees						
<b>7103-00 · Office Supplies</b>						
Deposit	04/01/2021	1363	River Wranglers	FEB/MAR copies	-202.23	-202.23
Check	04/11/2021	10221	Konica Minolta Business Solutions U...	MAR Copies	136.06	-66.17
Check	04/25/2021	10231	Office Depot Business Credit	paper/labels/pens/first aid	75.36	9.19
Check	04/25/2021	10231	Office Depot Business Credit	Credit for returns last month	-41.59	-32.40
General Jo...	04/30/2021			Debbie Neddenriep - Copies	-0.40	-32.80
General Jo...	04/30/2021			Debbie Neddenriep - Dish Soap	4.29	-28.51
General Jo...	04/30/2021			April Copies	-255.62	-284.13
Total 7103-00 · Office Supplies					-284.13	-284.13
<b>7104-00 · Postage</b>						
Check	04/30/2021	10234	Bank of America	APR -Postage	63.60	63.60
Total 7104-00 · Postage					63.60	63.60
<b>7105-00 · Rent</b>						
Check	04/01/2021	10215	Euronev, Ltd.	April 2021 Rent	3,146.00	3,146.00
Total 7105-00 · Rent					3,146.00	3,146.00
<b>7106-00 · Telephone/Internet</b>						
Check	04/25/2021	10230	Charter Communications	APR Phone/Internet Svcs.	359.94	359.94
Check	04/30/2021	10234	Bank of America	APR ZOOM.US	64.99	424.93
Check	04/30/2021	10234	Bank of America	APR -Microsoft Internet	62.50	487.43
Check	04/30/2021	10234	Bank of America	APR - Microsoft 365	5.00	492.43
Total 7106-00 · Telephone/Internet					492.43	492.43
<b>7107-00 · Travel-transport/meals/lodging</b>						
<b>7107-01 · Car Allowance</b>						
General Jo...	04/18/2021			Car Allowance Payroll #8 James	250.00	250.00
General Jo...	04/30/2021			Car Allowance Payroll #9 James	250.00	500.00
Total 7107-01 · Car Allowance					500.00	500.00
Total 7107-00 · Travel-transport/meals/lodging					500.00	500.00
<b>7108-00 · Dues &amp; Publications</b>						
Check	04/18/2021	10227	Division of Water Resources	Annual License Fee/James; State Water Right Surv...	20.00	20.00
Check	04/30/2021	10234	Bank of America	Lobbyist Registration-Ed James	300.00	320.00
Total 7108-00 · Dues & Publications					320.00	320.00
<b>7112-00 · Bank Charges</b>						
Check	04/30/2021	10234	Bank of America	Bank Fees ( reversed MAR Stmt)	-29.00	-29.00
Check	04/30/2021	10234	Bank of America	Interest	1.21	-27.79
Total 7112-00 · Bank Charges					-27.79	-27.79
<b>7114-00 · Outside Professional Services</b>						
Check	04/25/2021	10232	Truckee Meadows Parks Foundation	Americorps Pymt 2 of 2 (1 HT Member)	3,400.00	3,400.00
Total 7114-00 · Outside Professional Services					3,400.00	3,400.00
<b>7116-00 · Legal</b>						
Check	04/04/2021	10216	King & Russo, Ltd.	Professional Services MAR 2021	2,000.00	2,000.00
Total 7116-00 · Legal					2,000.00	2,000.00
<b>7117-00 · Lost Lakes Expenses</b>						

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05/02/21

Cash Basis

## CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

## Transaction Detail by Account

April 2021

Type	Date	Num	Name	Memo	Paid Amount	Balance
Check	04/11/2021	10219	USDA Forest Service	2020 & 2021 USDA FS Dam Fees	165.74	165.74
Total 7117-00 · Lost Lakes Expenses					165.74	165.74
<b>7120-00 · Integrated Watershed Programs</b>						
<b>7120-33 · Watershed Coord IV 2019-22</b>						
<b>7120-34 · WS Coord Grant MATCH 2019-21</b>						
<b>7120-36 · WS COORD MATCH - Operations</b>						
Check	04/18/2021	10226	Discover Lake Tahoe	River Float Bus Trans 4/29/21	660.00	660.00
Total 7120-36 · WS COORD MATCH - Operations					660.00	660.00
<b>7120-37 · WS COORD MATCH - NEON</b>						
Check	04/11/2021	10220	NEON Agency	Film & editing "Water, One thing the Connects Us All"	5,500.00	5,500.00
Total 7120-37 · WS COORD MATCH - NEON					5,500.00	5,500.00
Total 7120-34 · WS Coord Grant MATCH 2019-21					6,160.00	6,160.00
<b>7120-33 · Watershed Coord IV 2019-22 - Other</b>						
General Jo...	04/30/2021			April Copies	215.49	215.49
Total 7120-33 · Watershed Coord IV 2019-22 - Other					215.49	215.49
Total 7120-33 · Watershed Coord IV 2019-22					6,375.49	6,375.49
Total 7120-00 · Integrated Watershed Programs					6,375.49	6,375.49
<b>7437-00 · FEMA MAS #9</b>						
<b>7437-05 · HEC-RAS Modeling(HDR)</b>						
Check	04/11/2021	10222	HDR Engineering, Inc.	CV Model Response 1/22/2021-3/27/2021	3,524.80	3,524.80
Total 7437-05 · HEC-RAS Modeling(HDR)					3,524.80	3,524.80
<b>7437-00 · FEMA MAS #9 - Other</b>						
General Jo...	04/30/2021			April Copies	2.05	2.05
Total 7437-00 · FEMA MAS #9 - Other					2.05	2.05
Total 7437-00 · FEMA MAS #9					3,526.85	3,526.85
<b>7438-00 · BOR WaterSMART Market Program</b>						
<b>7438-01 · Water Mktg Study-LUMOS 2019-21</b>						
<b>7438-02 · BOR WaterSmart-LUMOS MATCH</b>						
Check	04/12/2021	10224	Lumos & Assoc., Inc.	Professional Services 2/20/21-3/19/21	7,423.40	7,423.40
Total 7438-02 · BOR WaterSmart-LUMOS MATCH					7,423.40	7,423.40
Total 7438-01 · Water Mktg Study-LUMOS 2019-21					7,423.40	7,423.40
Total 7438-00 · BOR WaterSMART Market Program					7,423.40	7,423.40
<b>7439-00 · FEMA MAS #10</b>						
<b>7439-02 · West CC Study (Kimley-Horn)</b>						
Check	04/11/2021	10223	Kimley-Horn & Associates, Inc.	FEMA 10-West CC ADP- Svcs thru Mar 31, 2021	5,755.00	5,755.00
Total 7439-02 · West CC Study (Kimley-Horn)					5,755.00	5,755.00
<b>7439-05 · Ch Cty Flood Maps (HDR)</b>						
Check	04/15/2021	10225	HDR Engineering, Inc.	Churchill Flood Mapping 2/28/2021-3/27/2021	9,057.47	9,057.47
Total 7439-05 · Ch Cty Flood Maps (HDR)					9,057.47	9,057.47
<b>7439-00 · FEMA MAS #10 - Other</b>						
General Jo...	04/30/2021			April Copies	29.57	29.57
Total 7439-00 · FEMA MAS #10 - Other					29.57	29.57
Total 7439-00 · FEMA MAS #10					14,842.04	14,842.04
<b>7440-00 · FEMA - MAS #11</b>						
General Jo...	04/30/2021			April Copies	8.51	8.51
Total 7440-00 · FEMA - MAS #11					8.51	8.51
<b>7500-00 · USGS Stream Gage Contract</b>						
<b>7500-03 · USGS Stream Flow Gauges 2019-21</b>						
Check	04/18/2021	ACH	U.S. Geological Survey	Qtrly Pymt JFA #19ZJJFA00127	19,601.67	19,601.67
Total 7500-03 · USGS Stream Flow Gauges 2019-21					19,601.67	19,601.67
Total 7500-00 · USGS Stream Gage Contract					19,601.67	19,601.67
<b>7508-00 · USGS Do.Co.WQ &amp; GW Monitoring</b>						
<b>7508-03 · DoCo WQ/GW Mon. 2019-21</b>						

For internal &amp; discussion purposes only.

Page 4

1:34 PM

## CARSON WATER SUBCONSERVANCY DISTRICT - GENERAL FUND

05/02/21

## Transaction Detail by Account


Cash Basis

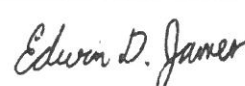
April 2021

Type	Date	Num	Name	Memo	Paid Amount	Balance
Check	04/18/2021	ACH	U.S. Geological Survey	Qtrly Pymt JFA #19ZJJFA00128	4,222.67	4,222.67
Total 7508-03 · DoCo WQ/GW Mon. 2019-21					4,222.67	4,222.67
Total 7508-00 · USGS Do.Co.WQ & GW Monitoring					4,222.67	4,222.67
<b>7524-00 · USGS-GW Lvl &amp; WQ in Ch.Co.</b>						
<b>7524-02 · USGS-GW Lvl &amp; WQ-ChCo 2018-22</b>						
Check	04/18/2021	ACH	U.S. Geological Survey	Qtrly Pymt JFA #18WSNV00134	692.50	692.50
Total 7524-02 · USGS-GW Lvl & WQ-ChCo 2018-22					692.50	692.50
Total 7524-00 · USGS-GW Lvl & WQ in Ch.Co.					692.50	692.50
<b>7526-01 · USGS Middle Carson GW 2020-21</b>						
Check	04/18/2021	ACH	U.S. Geological Survey	Qtrly Pymt JFA #20ZJJFA00128	3,812.50	3,812.50
Total 7526-01 · USGS Middle Carson GW 2020-21					3,812.50	3,812.50
<b>7640-00 · Churchill County Projects</b>						
<b>7640-09 · Lahontan Vly.Wtr.Lvl. 2018-21</b>						
Check	04/04/2021	10217	Churchill County	Oct -Dec 2020, Lahontan Vly. Wtr. Lvl. Meas.	3,745.00	3,745.00
Check	04/25/2021	10233	Churchill County	Jan-Mar 2021, Lahontan Vly. Wtr. Lvl. Meas.	4,475.00	8,220.00
Total 7640-09 · Lahontan Vly.Wtr.Lvl. 2018-21					8,220.00	8,220.00
<b>7640-18 · Dixie Vlt Wtr Lvl Meas 2019-22</b>						
Check	04/04/2021	10217	Churchill County	Oct-Dec 2020, Dixie Vly Wtr. Lvl. Meas.	9,026.91	9,026.91
Check	04/25/2021	10233	Churchill County	Jan-Mar 2021, Dixie Vly Wtr. Lvl. Meas.	4,195.00	13,221.91
Total 7640-18 · Dixie Vlt Wtr Lvl Meas 2019-22					13,221.91	13,221.91
Total 7640-00 · Churchill County Projects					21,441.91	21,441.91
<b>TOTAL</b>						

**CWSD Petty Cash Transaction Record**  
**March/April 2021**

Date	G/L No.	Description	Debits	Credits	Balance
		Starting Balance			\$116.80
3/19/21	7103-00	Debbie Neddenriep		\$0.30	\$117.10
	Office Supplies	Copies (6 B/W x.05)			
4/8/21	7103-00	Debbie Neddenriep		\$0.10	\$117.20
	Office Supplies	Copies (2 B/W x.05)			
4/30/21	7103-00	Debbie Neddenriep	\$4.29		\$112.91
	Office Supplies	Dish Soap			
		<b>PETTY CASH BALANCE</b>			<b>\$112.91</b>

Date: 5/2/21 Prepared by: 

Approved by: 

:cat

## **AGENDA ITEM #9**

## CARSON WATER SUBCONSERVANCY DISTRICT

**TO:** BOARD OF DIRECTORS

**FROM:** EDWIN D. JAMES

**DATE:** May 19, 2021

**SUBJECT:** Agenda Item #9 – For Possible Action: Approval of Revised Lost Lake Agreement with Carson City.

---

**DISCUSSION:** As discussed at the April Board meeting, the USFS is conducting their five-year review of the special use permit for the Lost Lakes. The USFS has develop a new method for calculating the fees associated with the permit. Currently, CWSD pays \$83 per year. Under the new method the permit fees will be over \$6,000 per year. After further discussions with the USFS, CWSD was told that the fees can be waived since we are a government agency. However, if CWSD charges for the Lost Lake water we are no longer eligible for the waiver.

According to Carson City, they used 36 AF this last year. Based on this usage, CWSD would receive approximately \$2,000 for the sale of the water. It makes economic sense to not charge Carson City for the water. Attached are the proposed changes to the Lost Lake Agreement with Carson City.

**STAFF RECOMMENDATION:** Approve the changes to the Lost Lake Agreement with Carson City.



# WATER LEASE AGREEMENT

## Lost Lakes

This Water Lease Agreement is entered into between the CARSON WATER SUBCONSERVANCY DISTRICT, a political subdivision of the State of Nevada, by and through its duly constituted Board of Directors (hereinafter "CWSD") and CARSON CITY, a political subdivision of the State of Nevada, by and through its duly constituted Board of Supervisors (hereinafter "CITY").

### WITNESSETH:

WHEREAS, CWSD holds title to 219.0 acre feet of water rights, including storage rights in Upper and Lower Lost Lakes Reservoirs, Claim Numbers 812 and 813 in the Alpine Decree; and

WHEREAS, CITY desires to ~~use lease~~ CWSD water for one (1) year for use within the boundaries of CITY for municipal purposes; and

WHEREAS, CWSD has made or will make any necessary application(s) to the State Engineer for permission to use CWSD's water rights for the purposes contemplated under this Agreement.

THEREFORE, in consideration of the mutual undertakings and for other good and valuable consideration, the parties agree and contract as follows:

1. Term of Agreement /~~Use/Cost~~ of Water

The term of this Agreement shall commence on the date both parties have executed the Agreement and shall continue through June 30, 202~~21~~<sup>24</sup>. CITY agrees to ~~lease and~~ use an amount not to exceed 100.0 acre feet of CWSD water from Lost Lakes.

~~CITY shall pay CWSD \$57.00 per acre-foot for~~ will not charge for water pumped by CITY. As used in this Agreement, the term "water delivery season" means the period beginning October 1, 202~~19~~<sup>24</sup>, and ending March 31, 202~~21~~<sup>24</sup>. The amount of water that can be pumped by CITY shall be determined by the actual amount of water released from Lost Lakes less any loss of water determined by the State Engineer or the Federal Water Master, due to conveyance from Lost Lakes

Reservoirs to CITY's point of re-diversion. ~~CITY shall pay CWSD for only the amount of water that is pumped. CITY shall pay CWSD by 15<sup>th</sup> of June based on the actual metered usage.~~

2. Costs of Diversion and Delivery of Water

CWSD will submit the Temporary Permit to the Nevada State Engineer and pay the application fees. The City will reimburse CWSD the fees once CWSD receives the Temporary Permit from the State Engineer. CWSD shall bear the costs of delivery of the water to CITY's point of re-diversion, including the costs of operation and maintenance of upstream storage facilities and payment of water fees to the Federal Water Master. CITY shall bear the costs associated with pumping the water from the two induction wells (Well Numbers 25 and 41B), measuring devices, pipelines, and other transporting devices. The City must first use all the Mud Lake water before pumping the Lost Lake water.

3. Treatment

CITY shall be responsible for the treatment of all water for municipal purposes, including water leased from CWSD, to applicable local, state, and federal standards.

4. Relief from Performance

In the event that the State of Nevada or a court of competent jurisdiction prevents the delivery of the surface water that is the subject of this Agreement to CITY's point of re-diversion, or if the Federal Water Master prevents the use of the subject water, CWSD and CITY are relieved from performance under this Agreement unless CWSD and CITY make a different agreement in writing.

5. ~~————~~ Required Approval

This Agreement will not become effective unless approved by appropriate official action of the Board of Supervisors of CITY and the Board of Directors of CWSD.

6. ~~————~~ Authority to Sign

The Parties represent and warrant that the person executing this Agreement on behalf of each respective Party has full power and authority to enter into this Agreement and that the Parties are authorized by law to perform the services set forth in this Agreement.

7. ~~————~~ Recordation



When fully executed, CITY shall record this Agreement with the Clerk-Recorder of Carson City, Nevada and with the Douglas County Recorder.

8. Limited Liability

CITY and CWSD do not waive and intend to assert any and all available Nevada Revised Statutes (NRS) Chapter 41 liability limitations in all cases. The contract liability of both Parties will not be subject to punitive or liquidated damages.

9. Indemnification

To the extent permitted by law, including, but not limited to, the provisions of NRS Chapter 41, each Party shall indemnify, hold harmless and defend, not excluding the other's right to participate, the other Party from and against all liability, claims, actions, damages, losses, and expenses, including but not limited to reasonable attorney's fees and costs, arising out of any alleged negligent or willful acts or omissions of the indemnifying Party, its officers, employees and agents. CITY further agrees to indemnify and hold CWSD harmless for any claims or actions including damages, costs and attorney's fees concerning the use of this water by CITY as specified in this Agreement.

10. Preamble: Recitals

The preamble and recitals are hereby made a part of this Agreement.

11. Continuing Appropriation

Pursuant to NRS 244.320, the Board of Supervisors of CITY has no authority to bind CITY to a contract beyond the terms of the Supervisors in office at the time of the contract approval. If a future Board of Supervisors of CITY does not appropriate money for this Agreement, CITY is no longer bound by this Agreement.

12. Notices

All notices or other communications required or permitted to be given under this Agreement must be in writing and shall be deemed to have been duly given if delivered personally by hand, or mailed by first class U.S. Mail, postage prepaid on the date posted, to the other Party at the following address:

For notice purposes, the addresses of each party are as follows:

CARSON WATER  
SUBCONSERVANCY DISTRICT  
Attn.: Edwin James  
General Manager  
777 E. William St., #110A  
Carson City, NV 89701  
775/887-7450

CARSON CITY  
  
Attn.: Darren Schulz  
Public Works Director  
3505 Butti Way  
Carson City, NV 89701  
775/887-2355 x- 7391

13. Severability

If any provision contained in this Agreement is held to be unenforceable by a court of law or equity, this Agreement will be construed as if the provision did not exist, the provisions will not be construed to render any other provision or provisions of this Agreement unenforceable, and the remaining terms of this Agreement will continue in full force and effect.

14. Public Records

Under NRS 239.010, CITY and CWSD information or documents may be open to public inspecting and copying. The Parties will have the duty to disclose unless a particular record is made confidential by law or a common law balancing of interests.

15. Separate Entities; Independent Contractor

The Parties are associated with each other only for the purposes and to the extent set forth in this Agreement. Nothing contained in this Agreement may be deemed or construed to create a partnership or joint venture, to create relationships of an employer-employee or principal-agent, or to otherwise create any liability for one Party whatsoever with respect to the indebtedness, liabilities, and obligations of the other Party. Each Party is and continues to be separate and distinct from the other Party, and each Party shall have the sole right to supervise, manage, operate, control, and direct performance of the details incident to its duties under this Agreement. The Parties' respective employees, agents, attorneys, principals, or representatives shall not be considered employees, agents, attorneys, principals, or representatives of the other Party.

16. Governing Law and Jurisdiction

This Agreement and the rights and obligations of the Parties hereto shall be governed by and construed according to the laws of the State of Nevada. The Parties consent to the jurisdiction of the First Judicial District Court of the State of Nevada in and for Carson City for enforcement of

|  
this Agreement.

17. Breach

The failure of either Party to perform any obligation of this Agreement within 30 days after being given written notice by the non-breaching Party of the failure to perform shall be deemed a breach. Except as otherwise provided for by law or this Agreement, the rights and remedies of the Parties are not exclusive and are in addition to any other rights and remedies provided by law or equity, including, without limitation, actual damages. In any action brought to enforce or interpret the terms of this Agreement, the prevailing party shall be entitled to its attorney's fees and costs, whether such a result was achieved by settlement, alternative dispute resolution or litigation. The Parties agree that, in the event a lawsuit is filed and a Party is awarded attorney's fees under this Agreement or by the court, for any reason, the rate applied to recoverable attorney's fees shall not exceed the rate of \$125 per hour.

18. Waiver

No waiver of any right or remedy shall be effective unless in writing. A waiver of any right or a party's failure to insist on strict compliance with the terms of this Agreement shall not operate as a waiver of any other right or remedy.

19. No Third-Party Beneficiary

It is specifically agreed between the Parties that none of the provisions this Agreement create in the public or any member thereof a third-party beneficiary, or grant anyone not a Party to this Agreement any right to maintain a suit for personal injuries or property damage under the terms or provisions of this Agreement.

20. Entire Agreement; Modification

This Agreement constitutes the entire Agreement of the Parties and as such is intended as a complete and exclusive statement of the promises, representations, negotiations, discussions, and other agreements that may have been made in connection with the subject matter herein. Unless an integrated attachment to this Agreement specifically displays a mutual intent to amend a particular part of this Agreement, general conflicts in language between any such attachment and this Agreement shall be construed consistent with the terms of this Agreement. No modification or amendment to this Agreement shall be binding upon the Parties unless the same is in writing and

signed by the Parties hereto.

21. Counterparts

This Agreement may be executed in counterparts, each of which shall be deemed to be an original but all of which, taken together, shall constitute one and the same Agreement.

22. Force Majeure

Neither Party shall be deemed to be in violation of this Agreement if it is prevented from performing any of its obligations hereunder due to strikes, failure of public transportation, civil or military authority, acts of public enemy, accidents, fires, explosions, or acts of God, including, without limitation, earthquakes, floods, winds or storms. In such an event the intervening cause must not be through the fault of the Party asserting such an excuse, and the excused Party is obligated to promptly perform in accordance with the terms of the Agreement after the intervening cause ceases.

IN WITNESS WHEREOF, the parties have executed this Agreement.

CARSON WATER  
SUBCONSERVANCY DISTRICT

CARSON CITY

\_\_\_\_\_  
Robert S. Giomi, Chairman

\_\_\_\_\_  
Lori Bagwell, Mayor

Dated: \_\_\_\_\_

Dated: \_\_\_\_\_

ATTEST:

ATTEST:

\_\_\_\_\_  
Catrina Schambra, Secretary to the Board

\_\_\_\_\_  
Aubrey Rowlatt, Clerk-Recorder

Dated: \_\_\_\_\_

Dated: \_\_\_\_\_

## **AGENDA ITEM #10**

## CARSON WATER SUBCONSERVANCY DISTRICT

**TO:** BOARD OF DIRECTORS

**FROM:** EDWIN D. JAMES

**DATE:** May 19, 2021

**SUBJECT:** Agenda Item #10 – For Possible Action: Carson Water Subconservancy District will conduct a Public Hearing on its FY 2021-2022 Tentative Budget

---

**DISCUSSION:** Under NRS 354.596 all public entities are required to hold a public hearing on the tentative budget. The notice of the public hearing was placed in the Nevada Appeal on May 8, 2021. The Tentative Budget was approved by CWSD at the March 17, 2021 Board meeting and was part of the March Board package posted on the CWSD website.

**STAFF RECOMMENDATION:** Conduct the public hearing on the CWSD 2021-22 Tentative Budget.

## **AGENDA ITEM #11**



## CARSON WATER SUBCONSERVANCY DISTRICT

**TO:** BOARD OF DIRECTORS

**FROM:** EDWIN D. JAMES

**DATE:** May 19, 2021

**SUBJECT:** Agenda Item #11 – For Possible Action: Presentation by Lumos  
USBR Water Marketing Study

---

**DISCUSSION:** Nick Charles from Lumos will give a presentation on the USBR Water Marketing Study. Attached is a copy of the draft report and his presentation. Please [CLICK HERE](#) to review the report Appendix.

**STAFF RECOMMENDATION:** Accept the USBR Water Marketing Study as presented or modified at the board meeting.

---

# **Carson Water Subconservancy District**

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## **Carson River Water Marketing**

**May 6, 2021**

**Draft:**  
**For Carson Water Subconservancy District and Stakeholder Review**

**Prepared For:**

Carson Water Subconservancy District  
777 E. William St. Suite 110A  
Carson City, NV 89701

**Prepared By:**



308 N. Curry Street, Suite 200  
Carson City, NV 89703  
775 / 883-7077

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## Certification

The technical material and data contained in the document were prepared under the supervision and direction of the undersigned professional engineer. The opinions contained in this document reflect Lumos & Associates professional judgment in context with the scope of work and contract. The presented opinions are based on the conditions, information, and data provided to Lumos & Associates at the time the document was published and may be subject to change based on changing conditions, information, and data. Lumos & Associates did not verify independent information, conditions, and opinions supplied by others. There is no written or implied warranty or guarantee for any damages that occur from third party use of this document.

Draft:  
For Carson Water Subconservancy District &  
Stakeholder Review

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Prepared by



## Authorization

On June 19, 2019, the Carson Water Subconservancy District approved a contract with Lumos & Associates to complete a Water Marketing Study. The project is being funded through a US Bureau of Reclamation Water Marketing Strategy Grant. The contract scope of work is summarized as follows:

- Task 1.1 Project Management and Administration
- Task 1.2 Communication and Outreach
- Task 1.3 Evaluate Existing Water Supply by River Segment
- Task 1.4 Identify and Rank Storage and Infrastructure Needs and Opportunities
- Task 1.5 Water Marketing Analysis
- Task 1.6 Water Market Report

## Abbreviations

AF	acre foot
AFA	acre foot annually
AF/AC	acre foot per acre
ASR	aquifer storage and recovery
CFR	Code of Federal Regulation
CFS	cubic feet per second
CWSD	Carson Water Subconservancy District
DCLTSA	Douglas County Lake Tahoe Sewer Authority
GPM	gallons per minute
GWUDI	groundwater under the direct impact of surface water
IHGID	Indian Hills General Utility District
IVGID	Incline Village General Improvement District
LCUD	Lyon County Utility District
MAR	managed aquifer recharge
MG	million gallons
MGD	million gallons per day
MGSD	Minden-Gardnerville Sanitation District
MLWS	Marlette Lake Water System
MPUD	Markleeville Public Utility District
NAC	Nevada Administrative Code
NRS	Nevada Revised Statute
PPB	part per billion
RIB	rapid Infiltration Basin
STPUD	South Tahoe Public Utility District
TCID	Truckee-Carson Irrigation District
USGS	US Geological Survey
WTP	water treatment plant
WWTP	wastewater treatment plant
$\sigma$	standard deviation

## Definitions

**Community Water System (CWS)** – “a system that supplies water to the same population year-round” (US Environmental Protection Agency, 2017).

**Conjunctive Management** – jointly managing ground and surface waters together rather than exclusively.

**Groundwater Under the Direct Impact of Surface Water (GWUDI)** – According to 40 CFR §141.2 GWUDI is *any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as Giardia lamblia or Cryptosporidium, or significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.*

**Non Community Water System (NC)** – A water system that “provides water in a place such as a gas station or campground where people do not remain for long periods of time” (US Environmental Protection Agency, 2017). These systems are also known as Transient Non-Community systems (TNC).

**Non-Transient Non-Community System (NTNC)** – A system that “regularly supplies water to at least 25 of the same people at least six months per year” (US Environmental Protection Agency, 2017).

**Perennial Yield** – “the maximum amount of groundwater that can be salvaged each year over the long term without depleting the groundwater reservoir” (King, 2018)

**Riparian water right** – the right to use natural flow on riparian land, or in other words the right to use the natural flow of water on land that touches a surface water. Riparian rights can only be used on land that drains back to the river, lake, or stream the water came from and only apply to naturally occurring flows (California Water Boards, 2019).

**Standard Deviation** – represents the deviation from the mean (or average) of a dataset. A larger standard deviation indicates that the datapoints in the dataset are more widely dispersed from the mean. A smaller standard deviation indicates the datapoints are closer to the mean.

## 1.0 INTRODUCTION

### 1.1 Water Marketing Report Background

The purpose of this report is to formally document the varied efforts, evaluations, concepts, and outreach to develop a water marketing exchange and transfer strategy for the Carson River watershed. This report generally covers two very broad topics. The first topic addresses Carson River watershed history, regulatory oversight, data, and trends. These topics are covered in Chapters 2.0 through 4.0. The second topic covers existing water marketing opportunities and future water marketing strategies. These topics are covered in Chapters 5.0 through 6.0. Future water marketing strategy(ies) will consider water supply instability, water supply shortages, legal and physical restraints, and potential water storage concepts.

### 1.2 Carson River Watershed Background

The Carson River originates in the Eastern Sierra Mountains of California and terminates in the Carson Sink in the Nevada desert. Although numerous streams and creeks come together to form the Carson River, the main tributaries are the East Fork and the West Fork of the Carson River. Elevations range from 11,460-feet at Sonora Peak near the headwaters of the East Fork to 3,850-feet in the Carson Sink, nearly 200 miles downstream. The Carson River allows communities to thrive in the desert. Waters that begin as High Sierra snowpack are utilized for potable consumption (through surface water treatment and groundwater recharge), agricultural uses, and recreation. The river also provides for a variety of flora and fauna that changes as the river descends the Sierra Mountains to the Nevada desert. The Carson watershed is bordered by the Truckee River watershed on the west and north and the Walker River watershed to the south. Table 1.1 summarizes some key features of the Carson Watershed and Figure 1.1 and Figure 1.2 highlight the location and topography of the watershed.

**Table 1.1 – Carson Watershed Facts**

Watershed Area	3,962.9 miles <sup>2</sup>
Carson River Length	131.1 miles
East Fork Carson River Length	68.0 miles
West Fork Carson River Length	39.6 miles
Named Creeks, Rivers, canals, etc. in Watershed	186
Total Length of named Creeks, Rivers, Canals, etc. in Watershed	1,043.8 miles





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Carson City Subconservancy District

**Carson Watershed Area Map**

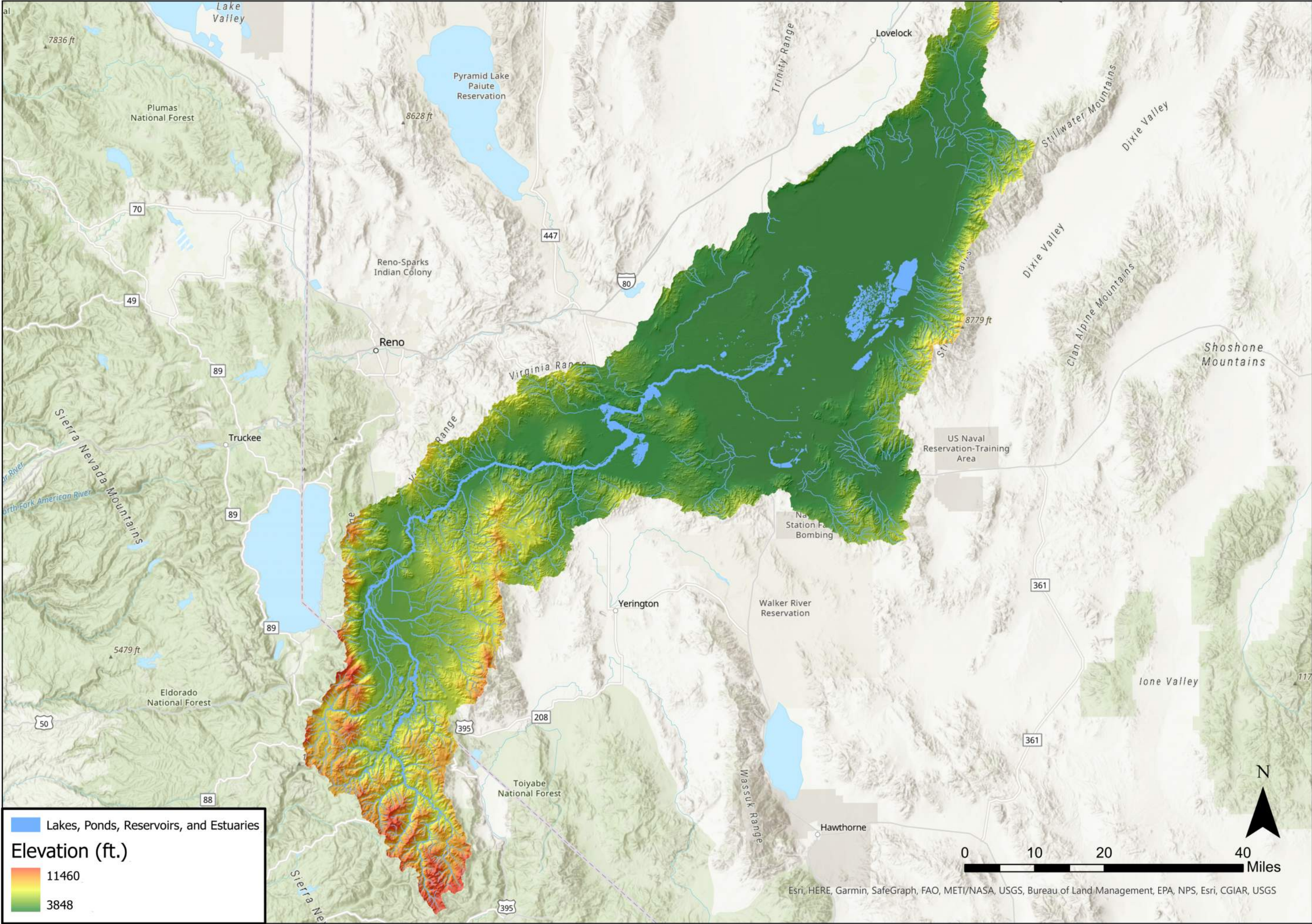
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY





Lakes, Ponds, Reservoirs, and Estuaries  
**Elevation (ft.)**  
 11460  
 3848

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Carson Water Subconservancy District  
**Carson Watershed Shaded Relief**

REV	DATE	DESCRIPTION	BY

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## 2.0 CARSON RIVER BACKGROUND

The Carson River and surrounding areas have a rich, but at times volatile history. Over the years there have been significant legal issues surrounding the use of water from the Carson River. The purpose of the following sections is to provide a brief summary of historical instream flows and the various rules and decrees that have tried to manage these flows.

### 2.1 Watershed Management

Water use along the Carson River is governed by the Alpine Decree. In 1925, the US Department of the Interior initiated the decree through *United States of America vs. Alpine Land and Reservoir Company, et al.* Fifty-five years later, in October 1980, the decree was finalized. The decree establishes surface water rights in both California and Nevada, establishes the right to reservoir storage, and defines the operation of the river on rotation. In addition the decree recognizes riparian rights in California and appropriative rights in Nevada (Nevada Division of Water Planning, 1999).

The Alpine Decree established eight (8) autonomous river segments, with segment 7 being subdivided into five (5) sub segments (see Table 2.1 and Figure 2.9). It also establishes consumptive use and duties for bottom, alluvial, and bench lands (see Table 2.2). However, the Decree does not define these lands (Nevada Division of Water Planning, 1999). The following summarizes the water distribution according to the Alpine Decree and Federal Water Master (Wathen, Larrouy, & Callahan, 2012):

1. Segment 1 – This segment consists of mostly riparian water rights and minimal regulation.
2. Segment 2 – This segment of river is regulated when flow at the Gardnerville gauge drops to 200 cfs. One-third of flows are diverted to the Allerman Canal and 2/3rds of flows remain in the river channel. Water is distributed based on priority.
3. Segment 3 – This segment consists of mostly riparian water rights and minimal regulation.
4. Segment 4 – Regulation of this segment is based on the *Anderson-Bassman Decree* and the *Price Decree*.
  - a. Anderson-Bassman Decree determines that the first Monday in June or when flows reach 100 cfs, water in the West Fork will be rotated between Segment 4 and Segment 5.
  - b. Price Decree controls rotation in segment 4.
5. Segment 5 – Water deliveries are based on priority. During weeks when California users receive water, any water that reaches Nevada is delivered to junior water rights.
6. Segment 6 – Diversions are by pumping. Water that reaches pumps meets the priority of the water right.
7. Segment 7 – This segment is regulated based on sub-segments a through e.
8. Segment 8 – This segment is not regulated by the Federal Water Master

**Table 2.1 – Alpine Decree River Segments (Wathen, Larrouy, & Callahan, 2012)**

Segment	River	Upper Boundary	Lower Boundary
1	East Fork	Headwater	CA/NV Stateline
2	East Fork	CA/NV Stateline	Confluence of East & West Forks
3	West Fork	Headwaters	USGS gauge at Woodfords
4	West Fork	USGS gauge at Woodfords	CA/NV Stateline
5	West Fork	CA/NV Stateline	Confluence of East & West Forks
6	Main	Confluence of East & West Forks	USGS gauge at Carson City



Segment	River	Upper Boundary	Lower Boundary
7	Main	USGS gauge at Carson City	Lahontan Reservoir
7(a)	Mexican Ditch and reach between Rose Ditch and Cardelli Ditch		
7(b)	Gee Ditch		
7(c)	Koch Ditch		
7(d)	Houghman and Howard Ditches		
7(e)	Buckland Ditch		
8	Main	Lahontan Reservoir	No lower boundary

**Table 2.2 – Alpine Decree Duty and Consumptive Use (Nevada Division of Water Planning, 1999; Wathen, Larrouy, & Callahan, 2012)**

	Newlands Project		Above Newlands Project	
	Duty	Consumptive Use	Duty <sup>1</sup>	Consumptive Use
Bottom Lands	3.5 AF/AC	2.99 AF/AC	4.5 AF/AC	2.5 AF/AC
Alluvial Fan Lands	NA	NA	6.0 AF/AC	2.5 AF/AC
Bench Lands	4.5 AF/AC	2.99 AF/AC	9.0 AF/AC	2.5 AF/AC

## 2.2 Surface Water Rights

As part of this project, an extensive summary of surface water rights in the Carson River watershed has been compiled. Over 2,000 surface water rights have been identified with associated data, including owner, priority, duty diversion location and source (see Appendix A). This dataset shows Nevada water rights dating back to 1849 to as recently as 2018.

## 2.3 Groundwater Management

There are seven defined groundwater basins in the Carson River watershed (see Table 2.3 and Figure 2.10). Six different groundwater basins are located in Nevada and one in California (Nevada Division of Water Resources, 2017; California Department of Water Resources, 2016). Although the Carson Valley Basin is intersected by the Nevada – California state line, it is physically the same hydrographic basin.

**Table 2.3 – Carson Watershed Groundwater Basins**

Groundwater Basin #	Groundwater Basin Name
CA 6-006	Carson Valley
NV105	Carson Valley
NV 104	Eagle Valley
NV 103	Dayton Valley
NV 102	Churchill Valley
NV 101A	Packard Valley
NV 101	Carson Desert

<sup>1</sup> In a 1980 Court Opinion regarding the upper watershed, the Court indicated that inadequate evidence existed to classify the three land types referenced in the Alpine Decree. The opinion then states that “the Water Master will exercise discretion in distributing water to meet the various demands of the various land types hereinabove noted, insofar as it is practical to do so” (The United States of America Vs. Alpine Land & Reservoir Company, a corporation, et al., 1980, pp. 27-28).

## 2.4 Historical Instream Flows

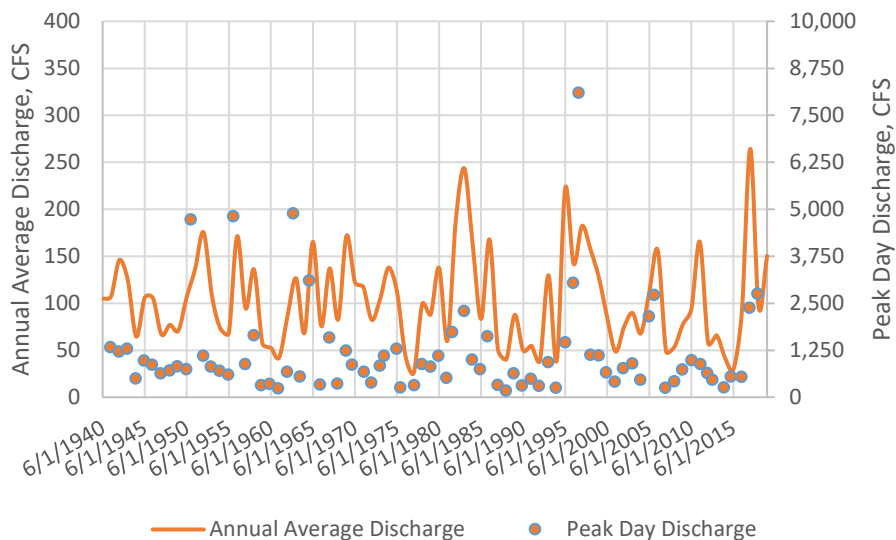
Annual average and peak day instream flow data was obtained from the USGS National Water Information System (US Geological Survey, 2020). The USGS has historically maintained numerous gauges along the Carson River, with numerous gauge locations no longer in service. Table 2.4 provides gauge details, historical data, and statistical analysis of four longstanding gauges located along the East Fork, West Fork, and main fork of the Carson River based on annual data<sup>2</sup>.

**Table 2.4 – Historical Flow Data and Statistics**

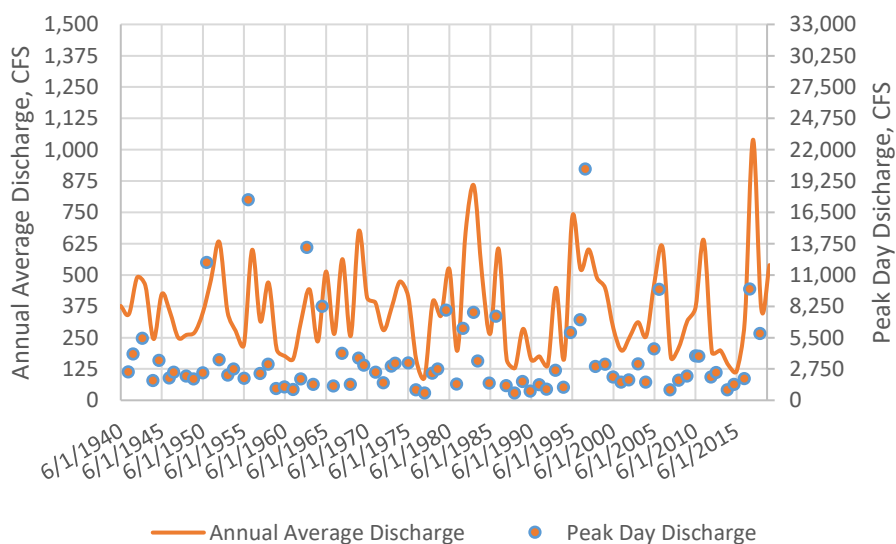
	West Fork at Woodfords	East Fork near Gardnerville	Carson River near Carson City	Carson River near Fort Churchill
USGS Station #	10310000	10309000	10311000	10312000
Latitude	38.7697	38.8452	39.1078	39.2917
Longitude	-119.8328	-119.7061	-119.7122	-119.3111
Data Record Analyzed	1940 to 2019	1940 to 2019	1940 to 2019	1940 to 2019
Annual Average Flow, CFS	103.5	367.5	403.9	380.1
Annual Median Flow, CFS	94.2	341.0	342.7	320.2
Max Annual Average Flow, CFS	264.3	1,040.0	1,292.0	1,270.0
	2017	2017	2017	2017
Minimum Annual Average Flow, CFS	26.1	91.6	58.5	36.3
	1977	1977	1977	1977
Annual Flow Standard Deviation, CFS	49.8	181.2	255.9	257.8
Average Peak Day Flow, CFS	1,170.6	3,597.7	4,175.0	3,284.7
Median Peak Day Flow, CFS	818.5	2,430.0	2,210.0	2,020.0
Maximum Peak Day Flow, CFS	8,100.0	20,300.0	30,500.0	22,300.0
	1/1/1997	1/3/1997	1/3/1997	1/3/1997
Minimum Peak Day Flow, CFS	170.0	626.0	385.0	230.0
	5/13/1988	5/16/1988	5/16/1988	6/11/1977
Peak Day Flow Standard Deviation, CFS	1,250.7	3,556.6	5,509.3	3,677.7
Annual Average to Peak Day Average Multiplier	11.3	9.8	10.3	8.6

Figure 2.1 through Figure 2.4 show annual average and peak day instream flows at each of the gauge stations listed in Table 2.4. For each gauge location, average annual flows can vary significantly from year to year. The “average” flow does not consistently occur, it is arguably just the average of extreme high and low flows that occur from year to year. Or in other words, it is just a statistical average. Visually, these charts show an increasing frequency of higher flow rates after 1980.

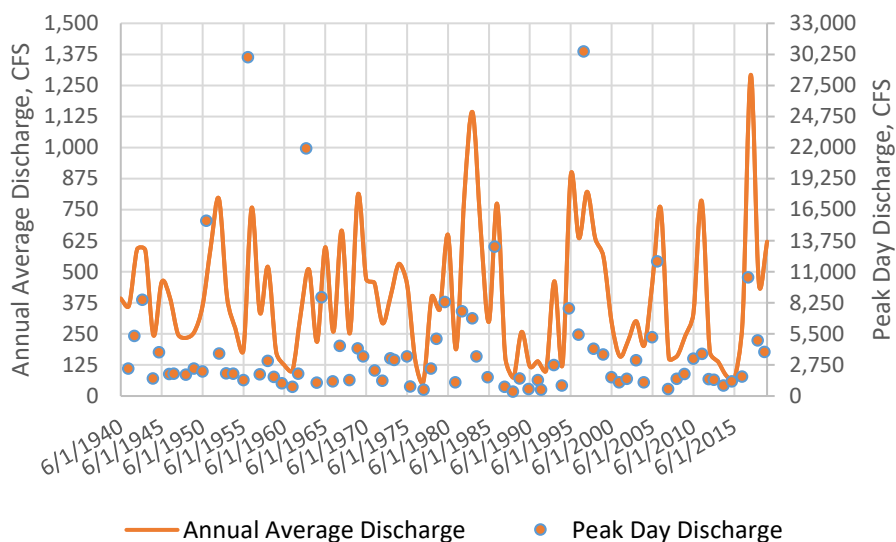
<sup>2</sup> Due to inconsistent data in the early 1900’s, each dataset was reduced to the years 1940 to 2019.



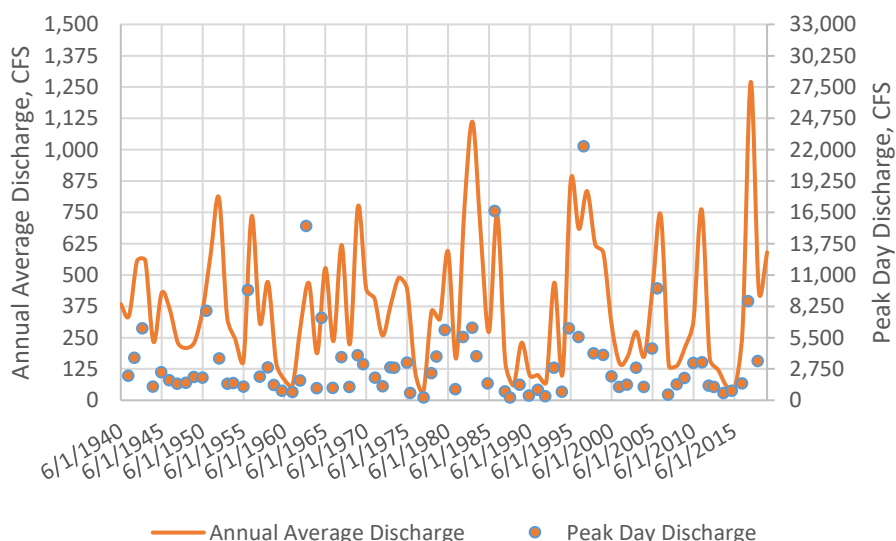
**Figure 2.1 – West Fork at Woodfords Historical Data (USGS #10310000)**



**Figure 2.2 – East Fork near Gardnerville Historical Data (USGS # 1039000)**



**Figure 2.3 – Carson River near Carson City Historical Data (USGS #10311000)**



**Figure 2.4 – Carson River near Fort Churchill Historical Data (USGS # 10312000)**

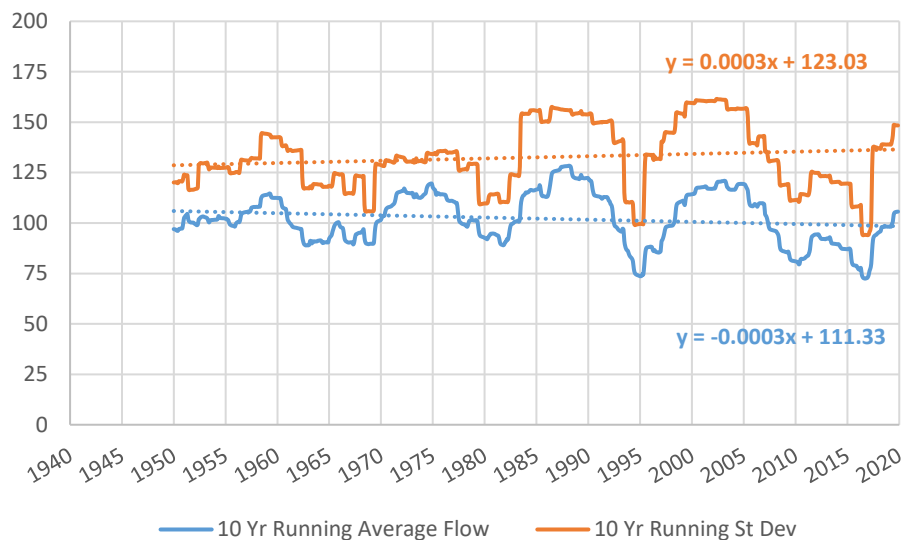
Table 2.5 captures the increased frequency of extreme high and low flows in the Carson River. This Table summarizes the number of years between 1940 and 1979 and 1980 to 2019 that exceed the 90<sup>th</sup> percentile flow and the number of years that flows did not exceed the 10<sup>th</sup> percentile flow. Flows above the 90<sup>th</sup> or below the 10<sup>th</sup> percentile were considered extreme flow years. Categorizing the data from 1940 to 1979 and 1980 to 2019 breaks the data up into two, equal 39-year time periods. The data indicates that years with extreme high or low annual average flows have over doubled since 1979.

**Table 2.5 – Trends in Instream Flow – Time Period Analysis**

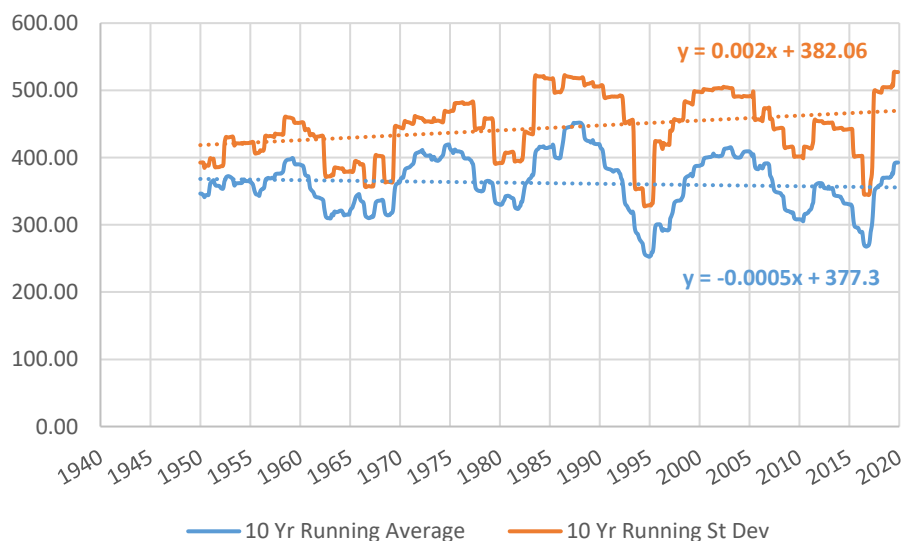
	West Fork at Woodfords	East Fork near Gardnerville	Carson River near Carson City	Carson River near Fort Churchill
90 <sup>th</sup> Percentile Flow (CFS)	167	600	732	710
Number of Years Annual Average Flow Exceeded 90 <sup>th</sup> Percentile Flow				
1940 to 1979	3	3	3	3
1980 to 2019	6	8	8	8
10 <sup>th</sup> Percentile Flow (CFS)	40	135	76	50
Number of Years Annual Average Flow was Less Than 10 <sup>th</sup> Percentile Flow				
1940 to 1979	1	1	1	1
1980 to 2019	3	2	2	1

As previously discussed, instream flow data indicates that flow trends have been changing. To evaluate these changes, linear regression models were developed for each gauge. Regression models developed for the annual data shown in Figure 2.1 through Figure 2.4 showed no statistical significance<sup>3</sup>; however, as previously noted, instream flows are highly variable (see the standard deviation in Table 2.4) and becoming more variable (see Table 2.5). It is believed that this high level of annual variability impacts the ability to develop statistical trends. To develop statistical significance, the 10-year running average was calculated for each gauge using monthly flows. The 10-year running average is simply the average of the previous 10-years from a given date. The 10-year running average calculation helps average out extreme highs and lows and provides better insight into trends in the dataset. Figure 2.5 to Figure 2.8 shows the 10-year running average flow and 10-year running average sample standard deviation for the gauges listed in Table 2.4 from 1940 to 2019. Each figure includes a trendline and associated regression equation through the 10-year running average calculation. The trend line for each gauge shows a trend of decreasing flows at each gauge location. Regression statistics indicate that the negative trend is statistically significant at the West Fork, East Fork, and Carson City gauges (P value of 0.00 to 0.01) but is less significant at the Fort Churchill gauge (P value of 0.11).

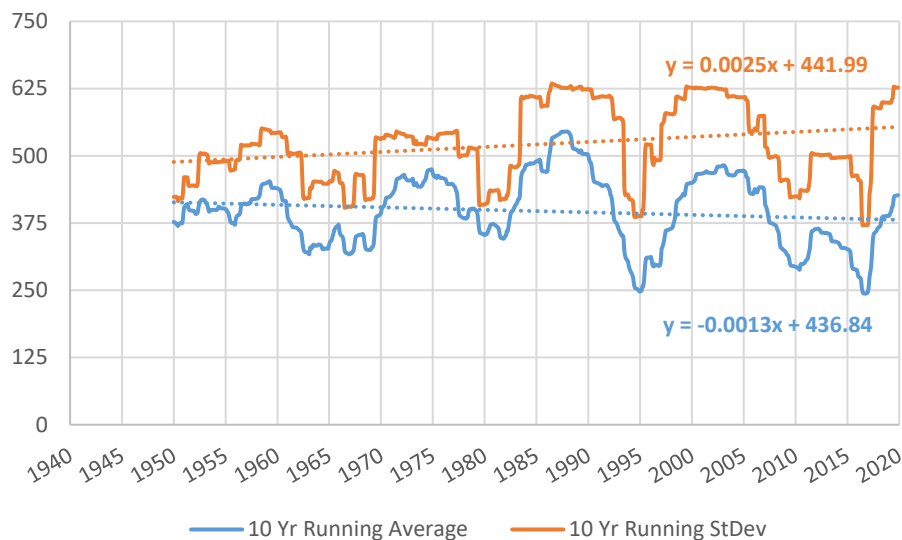
<sup>3</sup> P-values for the slope in the regression analysis ranged from 0.86 to 0.99. Assuming an alpha value (significance level) of 0.05, the regression models did not indicate a statistical change in flow based on the annual average flow dataset.



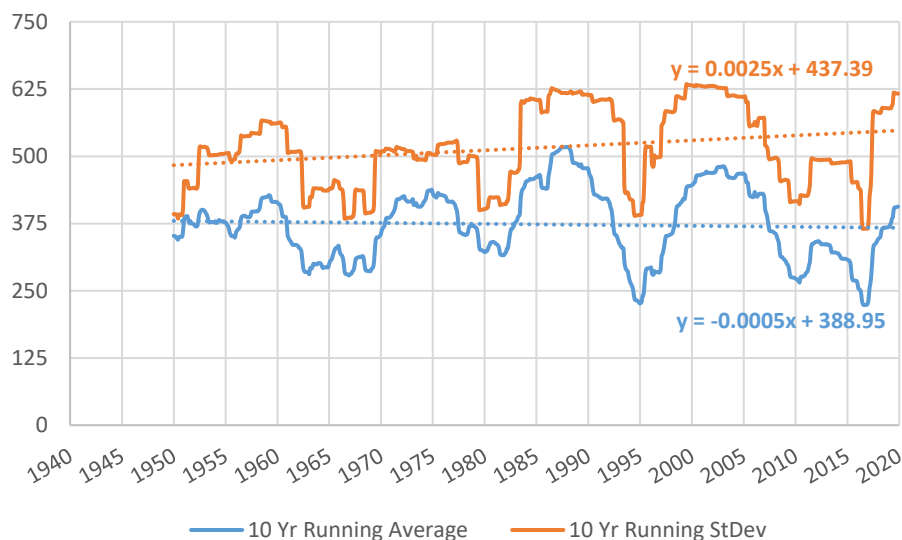
**Figure 2.5 – West Fork at Woodfords 10-Year Running Average (USGS #10310000)**



**Figure 2.6 – East Fork near Gardnerville 10-Year Running Average (USGS # 1039000)**



**Figure 2.7 – Carson River near Carson City 10-Year Running Average (USGS #10311000)**



**Figure 2.8 – Carson River near Fort Churchill 10-Year Running Average (USGS #10312000)**

Using the regression equation for each trendline<sup>4</sup>, Table 2.6 provides estimates of the annual average decrease in flow and the cumulative decrease in flow from 1940 to 2019. It should be noted that these decreases in flow are long-term trends and do not indicate conditions from year

<sup>4</sup> The slope of the regression equation indicates the average change in flow per day in CFS. Table 2.4 presents the change in flow in CFS per year, which is calculated by multiplying the regression equation slope by 365.25 days per year.



to year. The Fort Churchill gauge showed the lowest decrease in flow as a percentage of average flow and the Carson City gauge showed the highest decrease in flow as a percentage of average flow. For comparison, Table 2.6 also includes combined flows from the East and West Fork gauges. These two gauges largely indicate the naturally occurring flow in the Carson River watershed and provide a baseline for other flows. It should be noted that regression models were also developed using the 10-year running average from annual flow data. These models were not as statistically significant, but the results were less than 5% different from the 10-year monthly running average data for all gauges except the East Fork gauge.

**Table 2.6 – Trends in Instream Flow – Regression Analysis**

Location		West Fork at Woodfords	East Fork near Gardnerville	West Fork + East Fork	Carson River near Carson City	Carson River near Fort Churchill
Annual Average Change in Flow	CFS	-0.11	-0.18	-0.29	-0.47	-0.18
Change in Flow between 1940 and 2019	CFS	-8.3	-14.9	-23.2	-36.5	-14.3
Average Flow between 1940 and 2019	CFS	103.5	367.5	468.3	403.9	380.1
% Average Change in Flow between 1940 and 2019		-8.20%	-3.88%	-4.83%	-9.11%	-3.80%

The trends for decreasing flows at each gauge appear to contradict the increasing occurrence of higher flows as shown in Table 2.5. It is assumed that this discrepancy between the regression and time period analysis may be attributable to the increased variation in instream flows (as indicated by the standard deviation which is discussed below). Theoretically, instream flows cannot drop below 0 CFS but theoretically there is no upper limit to flows. Not having a theoretical upper flow limit may be skewing the outputs of the time period analysis shown in Table 2.5. For example, at the Carson City Gauge (see Table 2.5) there were three years between 1940 and 1979 where the average annual flow exceeded 732 CFS (90<sup>th</sup> percentile flow) but there are eight years between 1980 and 2018 that exceeded 732 CFS. Similarly, at the Carson City gauge there was only one year between 1940 and 1979 where the average flow never exceeded 76 CFS (10<sup>th</sup> percentile). Between 1980 and 2018, there were 2 years where average flow never exceeded 76 CFS.

Figure 2.5 through Figure 2.8 also shows the 10-year running sample standard deviation for each of the four gauges. Standard deviation is a measure of how much variance is in a dataset or in other words how far the data varies from the average. The trendline through the 10-year running sample standard deviation has a significant positive slope, indicating that the sample standard deviation has been increasing over time. The interpretation of this trend is that instream flows have become more variable over time (as discussed in the previous paragraph). This trend is consistent with the time period analysis shown in Table 2.5.

The conclusion of this analysis is that instream river flows are becoming more inconsistent with higher highs, more frequent lows (can never go below 0 CFS), and a decreasing trend in instream flows. This trend is true for each gauge listed in Table 2.4. For water users along the Carson River, these trends are troubling. The result is an amplification of the “feast or famine” condition

that already exists for the Carson River with the average flow slowly decreasing. If this trend continues, flows will continue to become more extreme, less reliable, and continue to decline. The lack of significant storage in the upper watershed prevents any stabilization or mitigation of these extremes.

## 2.5 Water Storage

### 2.5.1 Existing Water Storage

Outside of Lahontan Reservoir (storage capacity of 294,000 AF), there is very limited surface water storage within the Carson River watershed. Table 2.7 provides a summary of existing reservoirs above Lahontan Reservoir providing a combined storage capacity of approximately 11,766 AF. This storage volume is a mere 4% of the storage available in Lahontan Reservoir. With Lahontan included, the Carson River watershed contains 305,766 AF of storage. By comparison, the Truckee River watershed contains 1,089,210 AF of storage<sup>5</sup> (Wathen, Larrouy, & Callahan, 2012), nearly 3.6 times more storage than the Carson River watershed.

**Table 2.7 – Carson River Reservoirs above Lahontan (Wathen, Larrouy, & Callahan, 2012)**

Reservoir	Fork	Decreed Storage (AF)	Ownership	Priority
Scott Lake	West	508	Dressler, Neddenrip	1895, 1918
Red Lake	West	1,103	California Fish and Game	1895 & 1922
Crater Lake	West	167	Dressler	1895
East Lost Lake	West	92	Carson Subconservancy District	1924
West Lost Lake	West	127	Carson Subconservancy District	1924
Mud Lake	West	3,172	Bently Agrodynamics	1879 & 1909
Tamarack Lake	East	404	Alpine Land and Reservoir Company	1895
Kinney Meadows	East	435	Alpine Land and Reservoir Company	1895
Upper Kinney Meadows	East	328	Alpine Land and Reservoir Company	1895
Lower Kinney Meadows	East	495	Alpine Land and Reservoir Company	1895
Wet Meadows	East	207	Alpine Land and Reservoir Company	1895
Lower Sunset	East	250	Alpine Land and Reservoir Company	1895
Upper Sunset	East	68	Alpine Land and Reservoir Company	1895
Summit Lake	East	31	Alpine Land and Reservoir Company	1901
Raymond Lake	East	50	Alpine Land and Reservoir Company	1895
Heenan Lake	East	2,948	Bently Agrodynamics and California Fish and Game	1923
Burnside Lake	East	100	Bently Agrodynamics	1892
Allerman No.'s 1, 2, & 4	East	1,081	Park Cattle & Bently Agrodynamics	1877 & 1905
Ambrosetti	East	200	Carson City	1882

<sup>5</sup> Lake Tahoe = 744,600 AF, Independence = 17,500 AF, Donner = 9,500 AF, Boca = 40,870 AF, Prosser = 29,840 AF, Stampede = 226,500, and Martis = 20,400 AF. It should be noted that Martis Reservoir is used primarily for flood control and usually operates at minimum pool.

Reservoir	Fork	Decreed Storage (AF)	Ownership	Priority
<b>Total West Fork</b>		<b>5,169</b>		
<b>Total East Fork</b>		<b>6,597</b>		
<b>Total Reservoir Storage</b>		<b>11,766</b>		

### 2.5.2 Historically Proposed Water Storage Projects

There is a long history of investigations and proposals for additional surface water storage in the Carson River watershed. As far back as 1888, legislation identified and withdrew certain lands for construction of reservoirs. In the 1888 legislation, lands for the following reservoirs were identified (Pumphrey, 1955):

- Pleasant Valley
- Mt. Bullion
- Indian Pool
- Heenan Lake
- Silver King
- Wolf Creek
- Dumonts Meadow
- Hope Valley
- Harveys Meadow

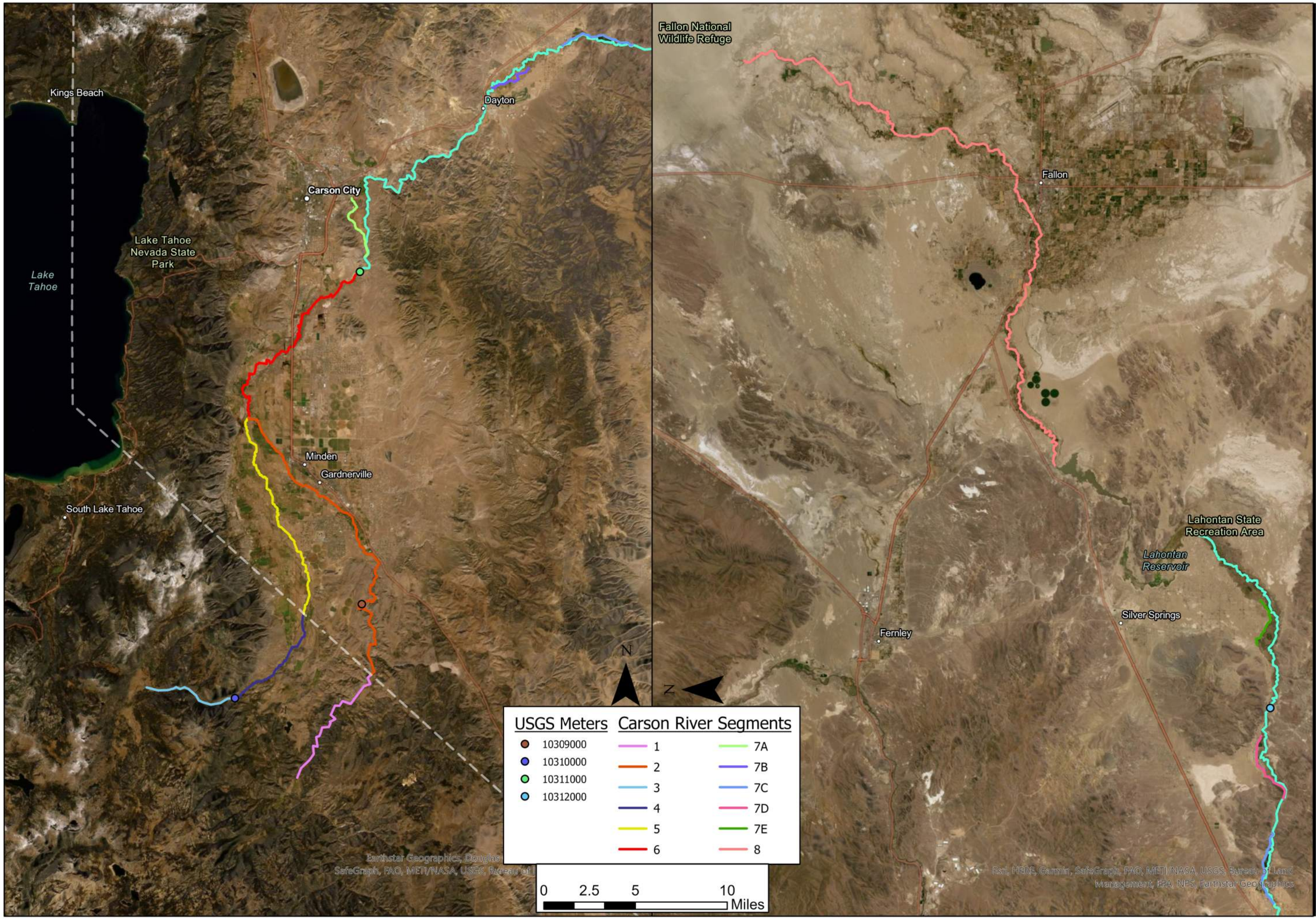
In 1955, the USGS published a report evaluating potential surface water storage and power generation sites in the Upper Carson River basin. The report identified the following potential reservoirs (Pumphrey, 1955):

- Hope Valley, West Fork
  - Base elevation – 7,000 feet
  - Pool elevation – 7,120 feet
  - Area at pool elevation – 1,180 acres
  - Capacity at pool elevation – 30,100 AF
  - Notes: Regulation dam or out of basin water imports would be required to satisfy water rights
- Horseshow Bend, East Fork
  - Base elevation – 4,960 feet
  - Pool elevation – 5,200 feet
  - Area at pool elevation – 1,190 acres
  - Capacity at pool elevation – 103,000 AF
  - Notes: An auxiliary dam would be required to develop this site to full capacity. It was noted that a ~2 mile tunnel could connect this site to the West Fork to reduce the impacts from construction of the Hope Valley reservoir.
- Watasheamu, East Fork
  - Base elevation – 5,020 feet
  - Pool elevation – 5,300 feet
  - Area at pool elevation – 1,780 acres
  - Capacity at pool elevation – 175,000 AF

- Pinyon, East Fork
  - Base elevation – 5,080 feet
  - Pool elevation – 5,400 feet
  - Area at pool elevation – 2,340 acres
  - Capacity at pool elevation – 284,000 AF
- Markleeville, East Fork
  - 97,000 AF of storage with 230 foot dam
  - 244,000 AF of storage with 330 foot dam
- Silver King, East Fork
  - Base elevation – 6,370 feet
  - Pool elevation – 6,500 feet
  - Area at pool elevation – 777 acres
  - Capacity at pool elevation – 44,200 AF
- Dumonts Meadow, East Fork
  - Base elevation – 6,670 feet
  - Pool elevation – 6,800 feet
  - Area at pool elevation – 552 acres
  - Capacity at pool elevation – 35,000 AF
- Pleasant Valley, Pleasant Valley Creek
  - Base elevation – 5,790 feet
  - Pool elevation – 6,000 feet
  - Area at pool elevation – 790 acres
  - Capacity at pool elevation – 59,900 AF
- Wolf Creek, Wolf Creek
  - Base elevation – 6,360 feet
  - Pool elevation – 6,500 feet
  - Area at pool elevation – 394 acres
  - Capacity at pool elevation – 26,100 AF

It should be noted that of the 1888 and 1955 sites listed above, only Heenan Lake was constructed. However, investigative and planning efforts for several reservoirs, especially the proposed Watasheamu reservoir, have been ongoing for many years.





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Carson City Subconservancy District  
**Alpine Decree  
River Segments Map**  
Carson City NV

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**FIG 2.9**

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Carson Water Subconservancy District

**Hydrographic Basins**

Nevada

Carson City

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**FIG 2.10**

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### 3.0 WATER USE

#### 3.1 Groundwater Basin Usage

As previously discussed, with the exception of Carson City, Douglas County, and Lyon County, all municipal water systems rely solely on groundwater as their water source. However, there are numerous other interests and users that rely on groundwater. These other uses include irrigation, commercial, recreation, environmental, domestic, livestock, etc. Groundwater users most commonly rely on a well to pump water out of the groundwater aquifer for use. As a result, there is a vast network of water wells located throughout the Carson River watershed allowing water to be extracted from the aquifer.

As discussed in Section 2.3, the Carson River watershed is divided into seven distinct hydrographic basins, one in California and the remaining basins in Nevada. Groundwater withdrawal data from the hydrographic basins was obtained from the Nevada Division of Water Resources (State of Nevada Division of Water Resources, 2020). California Basin 6-006 and Nevada Basin 105 are physically the same hydrographic basin that is divided by the California-Nevada state line. On the California side of the Carson Valley Basin the primary users are a limited number of domestic wells. Since there are a limited number of users in the California portion of the Carson Valley Basin, it is assumed that data from the Nevada side of the basin is generally representative of the entire basin. Of the other basins, no groundwater withdrawal data is available from Nevada Basin 101A (Packard Valley) and only limited data is available from Basin 101 (Carson Desert). Data has been categorized as irrigation (agricultural), domestic (private wells), municipal / quasi-municipal, and other. The "other" category includes various mining, industrial, recreation, environmental, etc. uses.

Table 3.1 shows the average annual withdrawals by hydrographic basin from 2013 to 2017, the perennial yield (and system yield when available), and the percent of the perennial yield that is being withdrawn from each basin. Reported perennial and system yields are taken from the Nevada Department of Water Resources Hydrographic Basin Summaries (2020). Perennial yield refers to naturally occurring recharge, generally through precipitation. System yield includes the perennial yield plus other sources of groundwater recharge such as irrigation and engineered recharge. Active recharge sites include Carson City's aquifer storage and recovery (ASR) system in Vicee Canyon (primarily from the Marlette Lake Water System), recharge from bypassing Kings and Ash Creek around the Quill WTP, and wastewater rapid infiltration basins located at several locations in the watershed. System yield is generally considered a more accurate representation of aquifer capacity. It should be noted that estimates of the perennial and system yields are not exact and there are other entities that have indicated different basins yields. However, for this project, the Nevada Division of Water Resources is considered the authoritative source. From Table 3.1, Churchill Valley and the Carson Desert hydrographic basins are withdrawing more water than the perennial yield. However, over the entire watershed, between 81% and 96% of available aquifer capacity is currently being used. There is between 2,700 to 14,700 AFA of additional groundwater available in the Carson River watershed. If system yield is considered, the available aquifer capacity would be even greater.

**Table 3.1 – Nevada Groundwater Usage by Hydrographic Basin (Nevada Division of Water Resources, 2020)**

Groundwater Basin #	Groundwater Basin Name	2013 to 2017 Average Annual Withdrawals (AFA)	Perennial Yield (System Yield) (AFA)	Average Withdrawals as a % of Perennial Yield (System Yield)
CA 6-006	Carson Valley	31,460	49,000	64%
NV105	Carson Valley			
NV 104	Eagle Valley (Carson City)	4,607	4,900 (9,000)	94% (51%)
NV 103	Dayton Valley (Dayton)	8,723	8,000 to 20,000 <sup>6</sup>	109% to 44%
NV 102	Churchill Valley (Silver Springs)	2,267	1,600	142%
NV 101	Carson Desert (Fallon) <sup>7</sup>	16,235	2,500	650% <sup>8</sup>
NV 101A	Packard Valley	Unknown	710	Unknown
Total		63,291	66,000 to 78,000	96% to 81%

Based on available data and perennial yield estimates, there is some additional groundwater capacity in the Carson River watershed. It does not appear that groundwater quantity is a limitation for the watershed as a whole. However, local limitations such as groundwater quality, hydrogeologic limitations of the aquifer, and transmission of available water do pose serious challenges in some areas of the watershed. For example, the Carson Valley has aquifer capacity well in excess of the current demand. But, arsenic, low pH, manganese, fluoride, total dissolved solids (TDS), and nitrate are all documented water quality issues present in the Carson Valley that reduce the usability of groundwater for potable purposes. Treatment is required to correct these water quality issues before groundwater can be used for potable use in a community water system. Other issues include sub-hydrographic basins with inadequate capacity to meet demand, such as the Ruhenstroth area of the Carson Valley or documented contamination of groundwater from septic systems (Naranjo, Welborn, & Rosen, 2013). Although Ruhenstroth, Fish Springs, and Johnson Lane are all located in the Carson Valley, these areas do not experience the same aquifer capacity that other areas of the Carson Valley do. Much of this has to do with recharge capacity (these areas are on the east, or Pinenut side of the Carson Valley) and hydrogeologic conditions.

Figure 3.1 summarizes the average groundwater withdrawals as a function of withdrawal type and hydrographic basin. This figure shows the magnitude of the water used in the Carson Valley compared to other downstream basins. Between 2013 and 2017, groundwater withdrawals from the Carson Valley Basin accounted for nearly 50% of all groundwater withdrawals in the Carson River watershed. Eagle Valley, Dayton Valley, Churchill Valley and the Carson Desert accounted

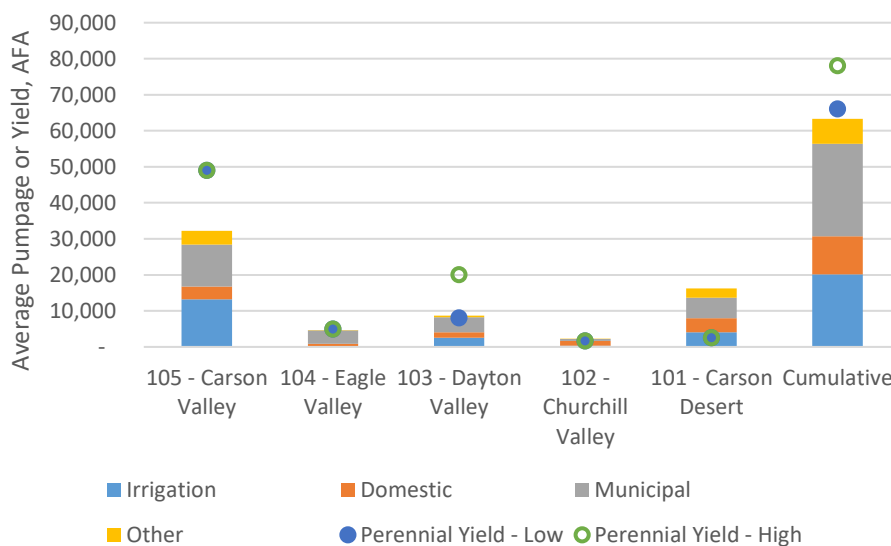
<sup>6</sup> Although this range is reported by the Nevada Division of Water Resources as the perennial yield, it may be more representative of the system yield.

<sup>7</sup> Comprehensive data for the Carson Desert Basin is not widely available. Presented data is based on 2013 and 2015 statewide pumpage reports available through the Nevada Division of Water Resource.

<sup>8</sup> Although accurate, this number is somewhat misleading. Although the perennial yield in the Carson Desert is relatively small, the system yield is likely significantly higher. The Carson Desert hydrographic basin is heavily influenced by irrigation and transfers from the Truckee River.



for 7%, 14%, 4%, and 26% of total groundwater withdrawals in the Carson River watershed, respectively. It should be noted that data for withdrawals from domestic wells is estimated by the Nevada Division of Water Resources assuming each 1 AFA is withdrawn from each domestic well per annum. Domestic well owners are not required to monitor use, so the reported values for domestic wells should only be considered an estimate.



**Figure 3.1 – Groundwater Usage by Hydrographic Basin**

Table 3.2 illustrates the issued water rights as a percentage of the perennial yield. This Figure indicates that every hydrographic basin is over allocated based on currently issued water rights and estimated perennial yield. This is a potentially serious issue; however, it is not likely that all of the issued water rights will be exercised such that actual pumping will increase to the issued water rights volume (see Table 3.1). This water deficit could be partially mitigated by determining the system yield for each basin rather than using just the perennial yield. As previously discussed, system yield considers other recharges such as irrigation and engineered recharge systems.

Table 3.2 highlights the discrepancy between “paper water” and “wet water”. “Paper water” refers to a water right that allows an entity to withdraw water from the aquifer. Whereas “wet water” refers to the physical water in the aquifer. In many situations “paper water” exists where “wet water” does not exist or where it is not of sufficient quantity or quality for the intended use. In some areas, such as Silver Springs, there is an excess of “paper water” but insufficient “wet water” making some water rights essentially unusable. At times, the volume of “wet water” can vary. For example, a 2011 USGS report documented long-term declines in static groundwater levels of more than 40-feet on the northwest side of Carson City and water level declines of 10-feet have been documented in the Carson Plains and Stagecoach sub-hydrographic basins (Maurer, 2011). However, more recent data suggests that some of this long-term static groundwater level decline has recovered, partially as a result of recharge activities in Carson City.

**Table 3.2 – Groundwater Water Rights by Hydrographic Basin as a Percent of Basin Perennial Yield**

	Irrigation	Domestic	Municipal	Other	Total
105 – Carson Valley	105%	3%	71%	17%	195%
104 – Eagle Valley	8%	0%	145%	6%	160%
103 – Dayton Valley	90% / 36%	6% / 2%	187% / 75%	24% / 9%	306% / 123%
102 – Churchill Valley	224%	0%	332%	28%	585%
101 – Carson Desert	161%	1%	427%	365%	793%
Cumulative	101%	3%	110%	30%	238%

In Nevada, groundwater use is based on the concepts of prior appropriation and beneficial use. With the exception of domestic wells, a water user must have a water right which allocates the diversion rate, duty, place of use, etc. of the withdrawal. In California, groundwater use is loosely regulated. In 2014, the California Sustainable Groundwater Management Act was enacted, requiring medium and high priority basins to balance pumping and recharge. At the time of this report, the only hydrographic basin located in the California portion of the Carson River watershed is not impacted by this law.

It should be noted, that the data and discussion presented in this section does not consider the concept of conjunctive use and conjunctive management. In other words, this analysis does not account for the interaction and connection between surface water and groundwater. However, the authors acknowledge the interaction and connection between surface water and groundwater, but it was beyond the scope of this project to consider this interaction.

## 3.2 Municipal Water Usage

### 3.2.1 Current Use

Within the Carson River watershed there are 84 regulated potable water systems stretching from Alpine County to Churchill County (for a complete list, see Appendix D). Of these systems, there are 32 “community” water systems<sup>9</sup> that provide water to approximately 44,000 residential, commercial, industrial, and landscape irrigation water services connections in the watershed. The remaining 52 regulated systems are classified as non-community water systems which include businesses not connected to a municipal water system, parks, campgrounds, etc. Non-community water systems were not analyzed as part of this project (California State Water Resources Board, n.d.; Nevada Division of Environmental Protection, n.d.).

Of the 32 community water systems in the watershed, water usage data was collected from 18 systems, representing 97.5% of the water system service connections<sup>10</sup>. Table 3.3 contains summary data from these water systems. Data presented in this table is taken primarily from pumpage records from 2015 to 2019 and is ordered from highest usage per connection to the smallest usage per connection. The average total annual usage for these water utilities is 25,796 AFA. Assuming that all other community water systems usage is consistent with those systems shown in Table 3.3, total community water system demand in the Carson River watershed (for all 32 community water systems) would be approximately 26,460 AFA, or 8,620 million gallons of

<sup>9</sup> A community water system is defined as a system that supplies water to the same population year-round.

<sup>10</sup> Douglas County operates 6 different permitted community water systems in the Carson Valley. For simplicity these systems collectively referred to as Douglas County.

water per year. Figure 3.2 depicts the volume of water usage per entity compared to other water systems. For illustration, Figure 3.3 shows the seasonal changes in demand per connection for Douglas County water systems (on average, the highest user per connection). For Douglas County the average to monthly demand multiplier varies from a low of 0.27 in February to a high of 2.06 in August (average day demand to average month demand). This data highlights the seasonal changes in water demand in the Carson River Watershed. Other water systems are expected to have similar demand curves but the average to monthly multipliers will likely vary from water system to water system.

**Table 3.3 – Water Usage Data from Select Community Water Systems**

	Connections	% of Connections	Average Annual Usage (AFA) <sup>E</sup>	% of Average Usage	AFA per Connection <sup>F</sup>	% of Avg AFA per Connection
Douglas County <sup>A</sup>	2,378	6.4%	2,088	8.1%	0.76	126.9%
Gardnerville Ranchos GID <sup>A</sup>	3,992	9.3%	2,881	11.2%	0.72	120.0%
Town of Minden <sup>B</sup>	1,799	4.2%	1,252	4.9%	0.70	115.8%
City of Fallon <sup>B</sup>	3,215	7.5%	2,220	8.6%	0.69	114.9%
Carson City <sup>A</sup>	16,883	39.3%	11,078	42.9%	0.66	109.1%
Churchill County <sup>C</sup>	271	0.6%	147	0.6%	0.54	90.5%
Gardnerville Water Co <sup>A</sup>	2,376	5.5%	1,279	5.0%	0.54	89.5%
Indian Hills GID <sup>A</sup>	1,950	4.5%	995	3.9%	0.51	84.8%
Stagecoach GID <sup>B</sup>	564	1.3%	256	1.0%	0.45	75.5%
Silver Springs GID <sup>B</sup>	1,088	2.5%	484	1.9%	0.44	74.0%
Lyon County Utility District <sup>A</sup>	6,849	16.0%	2,772	10.7%	0.40	67.3%
Storey County <sup>D</sup>	635	1.5%	231	0.9%	0.36	60.6%
NAS Fallon <sup>B</sup>	550	1.3%	113	0.4%	0.21	34.2%
Total or Weighted Average	42,910		25,796		0.60	

<sup>A</sup> Data was provided directly from the utility to Lumos & Associates. Douglas County operates 6 community water systems in the Carson Valley.

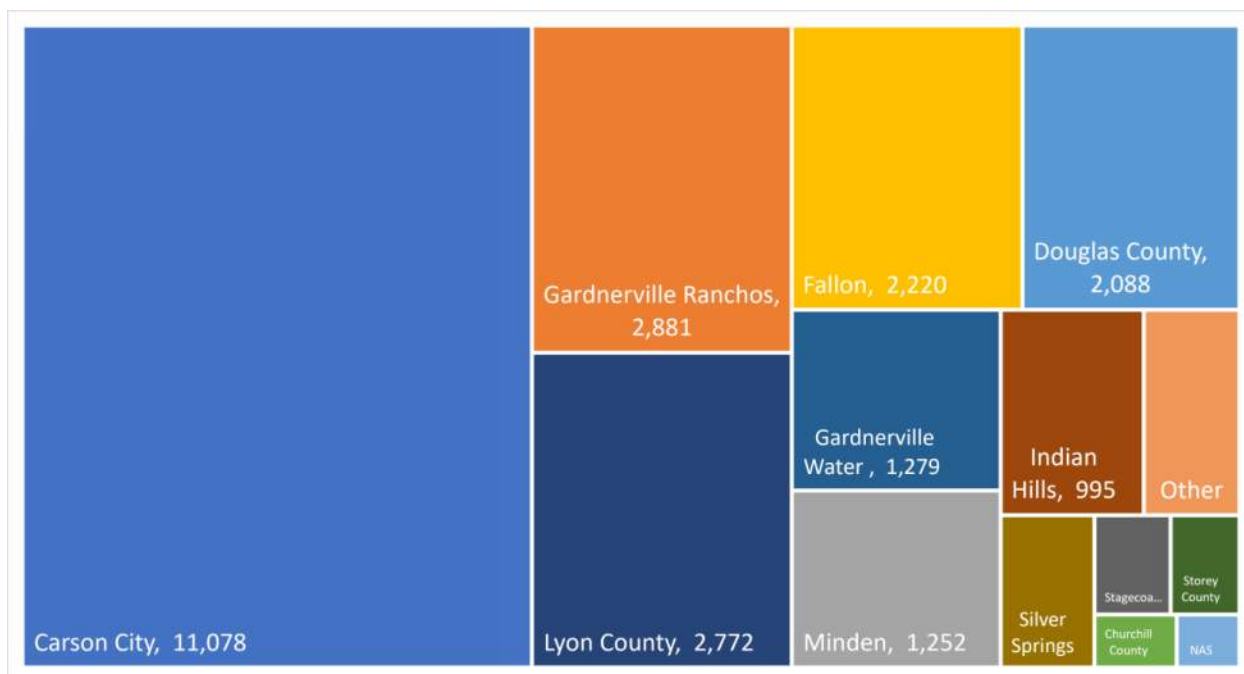
<sup>B</sup> Data was provided to Lumos & Associates by CWSD staff

<sup>C</sup> Data extracted from *Churchill County Water and Wastewater Utilities Master Plan* (Shaw Engineering, 2019).

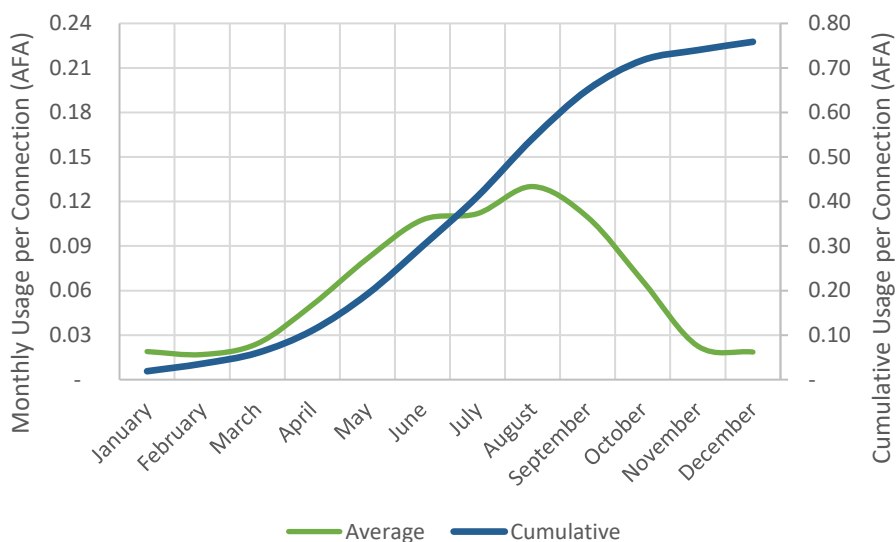
<sup>D</sup> Data provided to Lumos & Associates by the Marlette-Hobart Water System

<sup>E</sup> One-acre foot of water is equal to 325,851 gallons of water. The largest water user, Carson City, uses on average 3,609.6 million gallons of water per year, or 9.9 million gallons per day. The smallest user, NAS Fallon, uses 36.8 million gallons of water per year, or 0.2 million gallons per day.

<sup>F</sup> 1.12 AFA per equivalent dwelling unit (EDU) is commonly used for estimates of water use. 1.12 AFA is equal to nearly 1,000 gallons per day. In most cases, a water system will have more EDU's than water connections. The largest user on a per connection basis, Douglas County, uses on average 680 gallons per day per connection. The smallest user on a per connection basis, NAS Fallon, uses on average 183 gallons per day per connection. The weighted average usage is 544 gallons per day per connection.



**Figure 3.2 – Water Usage Comparison in AFA**



**Figure 3.3 – 2015 to 2019 Douglas County Monthly Water Usage**

All of these water systems use groundwater to meet system demand. However, Carson City, Douglas County, and Lyon County Utilities also utilize surface water for potable use. Carson City utilizes induction wells and diverts water from Kings Creek, Ash Creek, and the Marlette Lake Water System (MLWS) for treatment at the Quill water treatment plant. The MLWS transfers water from the Tahoe Basin / Truckee River watershed to Carson City. On average, 17%, of Carson City's public water supply comes from Kings Creek, Ash Creek, and the MLWS and 11%, comes from induction wells (Carson City Public Works Department, 2018). Douglas County utilizes one induction well off of Jack's Valley Road which accounts for approximately 2% of their

water usage. Lyon County utilizes an induction well in the vicinity of the Rolling A wastewater treatment plant. In 2019, this induction well accounted for approximately 25% of water usage in the Lyon County Utility District water system<sup>11</sup>.

It is important to note that many of these community water systems change the way that they use their water sources as a result of seasonal demand changes, growth, and changing water quality regulations. For example, in 2001 the EPA adopted a new standard for arsenic that dropped the maximum contaminant level for potable water systems from 50 parts per billion (ppb) to 10 ppb. This rule significantly impacted numerous wells in the Carson River Watershed and was a motivating factor that led to the construction of the regional water system connecting Minden, Douglas County, Carson City, and Indian Hills. As another example, Carson City's ability to fully utilize surface water from Ash Creek and the MLWS has been significantly reduced due to implications of the Disinfection Byproducts Rule and the Long Term 2 Enhanced Surface Water Treatment Rule (LT2). These issues highlight the challenges with providing potable water. Community water systems have to meet seasonally variable water demands, increasing demands due to growth, and increasingly more stringent water quality requirements.

### **3.2.2 Estimated Future Municipal Water Usage**

Based on the 2015 to 2019 water usage data, future municipal water usage estimates were generated for each community water system shown in Table 3.3. Twenty-year water usage and connection counts were estimated using population growth projections from the Nevada State Demographer<sup>12</sup> (Hardcastle, 2019). Estimates indicate that population growth is expected to vary greatly from County to County. But growth rates for all counties are expected to decrease over time. Table 3.4 and Figure 3.4 summarize expected water usage and water system customer counts between 2020 and 2040.

It should be noted that the Nevada State Demographers population growth estimates are used primarily for tax forecasting and other similar uses. As a result, the State Demographer's estimates may potentially underestimate actual growth. However, underestimating population growth may be offset by decreasing trends in water usage. Many community water systems are experiencing reductions in water usage per connection. Changes in water usage can be the result of water rate structures (increased cost can lead to reductions in usage), water efficient appliances, a trend towards smaller lots, and water efficient landscaping.

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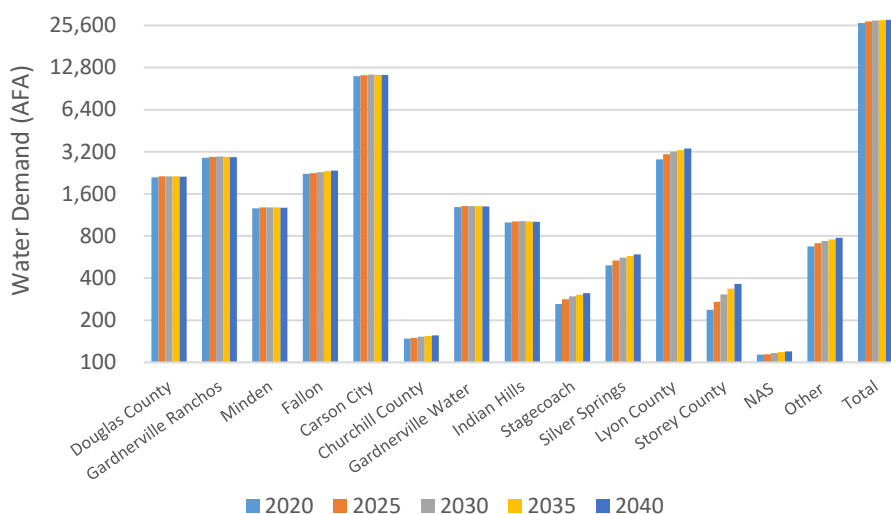
<sup>11</sup> Lyon County's induction well (Well 20) usage varies from year to year. In the past, pumpage from this well has been impacted by system hydraulics, construction projects, and instream flows.

<sup>12</sup> The State Demographer projections end in 2038. The average growth rate from 2020 to 2038 were used to estimate growth in 2039 and 2040. Average estimated growth rates from Nevada were used to estimate usage and connections for water systems in California.

**Table 3.4 – Water Usage and Connection Estimates**

		2020	2025	2030	2035	2040	2020 to 2040 % Increase
Douglas County	Connections	2,754	2,796	2,807	2,799	2,781	0.9%
	Usage (AFA)	2,101	2,132	2,141	2,135	2,121	
Gardnerville Ranchos GID	Connections	4,016	4,077	4,093	4,081	4,054	0.9%
	Usage (AFA)	2,898	2,942	2,953	2,944	2,925	
Town of Minden	Connections	1,810	1,837	1,844	1,839	1,827	0.9%
	Usage (AFA)	1,260	1,279	1,284	1,280	1,272	
City of Fallon	Connections	3,225	3,257	3,319	3,369	3,401	5.5%
	Usage (AFA)	2,227	2,249	2,292	2,327	2,349	
Carson City	Connections	16,951	17,223	17,344	17,327	17,279	1.9%
	Usage (AFA)	11,122	11,301	11,380	11,369	11,337	
Churchill County	Connections	272	275	280	284	287	5.5%
	Usage (AFA)	148	149	152	155	156	
Gardnerville Water Co	Connections	2,390	2,426	2,436	2,429	2,413	0.9%
	Usage (AFA)	1,287	1,306	1,311	1,307	1,299	
Indian Hills GID	Connections	1,962	1,991	1,999	1,993	1,980	0.9%
	Usage (AFA)	1,001	1,016	1,020	1,017	1,010	
Stagecoach GID	Connections	575	623	653	670	687	19.5%
	Usage (AFA)	261	283	296	304	312	
Silver Springs GID	Connections	1,110	1,203	1,259	1,292	1,326	19.5%
	Usage (AFA)	494	535	560	575	590	
Lyon County Utility District	Connections	6,986	7,570	7,925	8,133	8,346	19.5%
	Usage (AFA)	2,828	3,064	3,208	3,292	3,378	
Storey County <sup>13</sup>	Connections	652	744	841	922	1,000	53.4%
	Usage (AFA)	237	271	306	336	364	
NAS Fallon	Connections	552	557	568	576	582	5.5%
	Usage (AFA)	113	114	117	118	120	
Other	Connections	1,122	1,181	1,229	1,261	1,289	14.8%
	Usage (AFA)	675	710	739	758	775	
Total or Weighted Average	Connections	44,376	45,761	46,597	46,975	47,251	6.5%
	Usage (AFA)	26,650	27,352	27,759	27,916	28,007	5.1%
	Demand / Connection	0.60	0.60	0.60	0.59	0.59	

<sup>13</sup> Much of the projected growth in Storey County is likely to occur outside of the Carson River Watershed.



**Figure 3.4 – Estimated Water Usage by Water System**

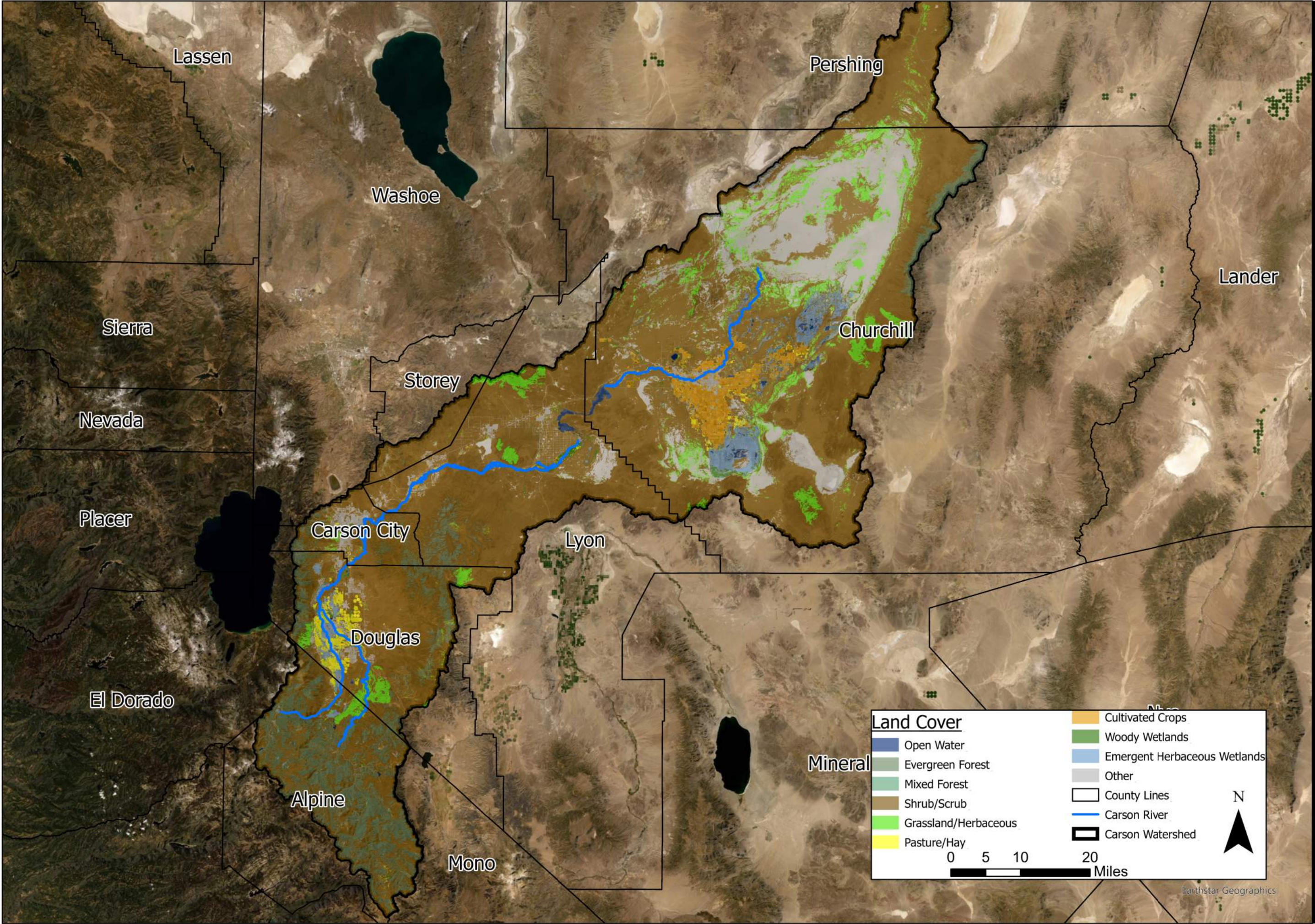
### 3.3 Agricultural Usage

The Carson River watershed encompasses many livestock-raising properties, especially in Douglas, Lyon, and Churchill counties. However, the U.S. Department of the Interior and U.S. Geological Survey both concluded that livestock in Nevada receive an inconsequential amount of water from surface water sources. A majority of livestock receive water from wells or on-farm water sources such as precipitation-filled ponds and troughs (US Department of the Interior, US Geological Survey, 2014). In their report, the US Department of the Interior indicates that it is unlikely that significant surface water resources will be diverted for livestock in the near future.

Throughout Nevada there are 6.1 Million Acres of total farmland and the majority of crops include alfalfa and hay as well as some small corn and wheat farms (U.S. Department of Agriculture, 2019). Utilizing data from the Department of Agriculture, estimates of how much of this land is in the Carson watershed were made. Using this it was possible to estimate how much surface water was used by each county from the Carson River. The Carson River travels through Douglas, Carson City, Lyon, and Churchill counties, but not all of the counties receive all of their surface water from The Carson River watershed. For example, Yerington, a large population and agricultural area in Lyon County, receives no water from the Carson River. The National Landcover Database was used estimate how much of the irrigated land in each county was in the watershed. Using the National Land Cover Database, agricultural land was classified into the type of vegetation and how the land has been developed either by nature or by human-intervention.

Utilizing this process, the total area of irrigated farmland in Douglas, Carson City, Lyon and Churchill counties was estimated to be 136,000 acres (see Figure 3.5). Based on data in the 2017 Census of Agriculture, it was determined that the average water application rate in Nevada is 2.8 Acre-feet of water per acre of irrigated land (2019). Using this value, the estimated water demand for agriculture in the Carson watershed is 380,800 Acre-feet.





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Carson City Subconservancy District  
**Carson River Watershed  
Land Cover**  
CITY COUNTY STATE

REV	DATE	DESCRIPTION	BY



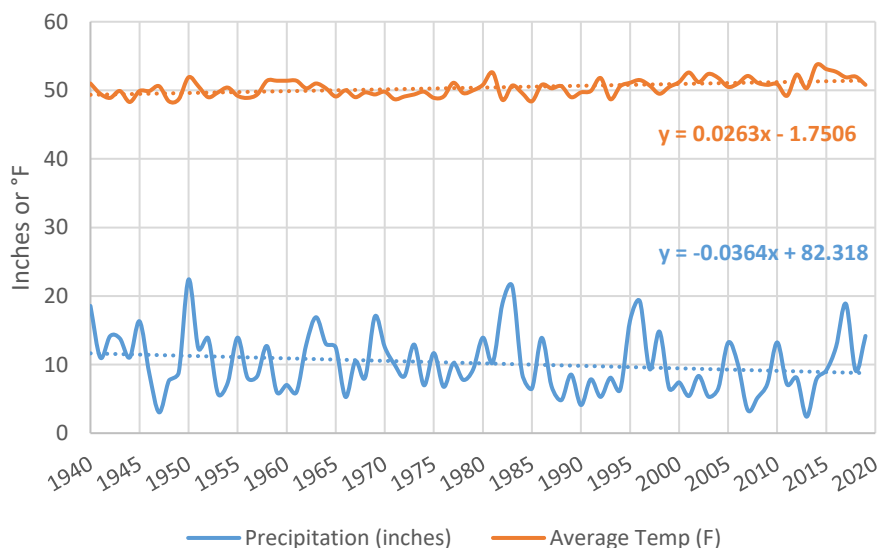
## 4.0 CLIMATIC CONDITIONS

As discussed in Section 2.4, flows in the Carson River can be described as highly variable with flows trending downward over time. The purpose of this Section is to evaluate these trends in context with historical climatic conditions. To distinguish weather conditions from climatic conditions, annual temperature and precipitation data was used rather than daily weather data. Since the purpose of this report is not a detailed climatic evaluation of the watershed, the analysis presented in this chapter focuses on climatic conditions in Carson City and how these conditions correlate with flows at the Carson City gauge from 1940 to 2019.

Table 4.1 and Figure 4.1 shows annual precipitation and average annual temperature data for Carson City from 1940 to 2019 (Prism Climate Group, 2020). Similar to instream river flows, precipitation at Carson City can be highly variable from year to year as evidenced by the high standard deviation. Annual average temperature exhibits much less variability. Figure 4.1 shows trendlines for precipitation and average annual temperature. The trends indicate that the average temperature is trending up (at 0.0263 °F on average per year) and that precipitation is trending down (at -0.0364 inches on average per year)<sup>14</sup>. These trends are consistent with and highlight the previously presented finding that instream flows in the Carson River are trending down (based on the assumption that there is a correlation between instream flows and precipitation).

**Table 4.1 – Carson City Climatic Summary, 1940 to 2019**

	Annual Precipitation (inches)	Annual Average Temperature (°F)
Max	22.4	53.7
Average	10.2	50.4
Minimum	2.4	48.3
Standard Deviation	4.4	1.2



**Figure 4.1 – Carson City Climatic Summary, 1940 to 2019**

<sup>14</sup> Both of these trends are statistically significant.

Multiple variable regression models were evaluated to determine the relationship between precipitation, temperature, and flows. The regression models indicated that precipitation and temperature both impacted flows in the Carson River. However, the regression models also indicated that other factors contributed to flow, and potentially more importantly, variability in flow. Other factors that may impact variability in flows include soil moisture, snowpack, precipitation type (snow or rain), spring runoff, upstream diversions, etc. Given the trends shown in Figure 4.1, and the relationship between temperature and precipitation, it can be concluded that increasing temperature and decreasing precipitation will result in a decrease in the average flows in the Carson River.

## 5.0 WATER MARKETING STRATEGIES

Sections 2.0 through 4.0 present and discuss numerous different topics related to the Carson River watershed. In summary, these sections highlight several important trends and topics, including:

- Flows in the Carson River are becoming more variable with higher highs and lower lows,
- Trends indicate that average instream flows have been declining over time,
- Climatic conditions are trending towards increasing temperatures and decreasing precipitation in Carson City,
- There is a lack of storage in the watershed, especially the upper watershed; and
- Population growth will likely increase future demand for water resources in the watershed.

Given these conditions, implementation of existing and new water management and marketing strategies will be needed to balance decreasing and more variable water supplies with increasing demand. Chapter 5.0 and 6.0 discuss existing and potential water marketing strategies, concepts, and alternatives that are or could be implemented to help address the likely future imbalance between water supply and demand.

### 5.1 Current Institutional and Water Marketing Practices

In the Carson River watershed, there are several existing programs, statutes, and decrees that govern the use of water, and by extension, the marketing of water. Regarding water marketing, the Alpine Decree and existing State water laws are of particular interest. As discussed in Chapter 2.0, the Alpine decree establishes surface water duties on the Carson River in both California and Nevada, establishes the right to reservoir storage, and defines the operation of the river on rotation. Additionally, the decree recognizes riparian rights in California and appropriative rights in Nevada (Nevada Division of Water Planning, 1999).

In addition to the Alpine Decree, state water laws also govern how water is used. In Nevada, water law is based on the concept of prior appropriation and beneficial use. In other words, water rights grant priority to water users ("first in time, first in right") for designated beneficial uses (State of Nevada Division of Water Resources, 2020). Regarding surface water, California water law is a system of riparian rights and prior appropriation. However, groundwater laws in California are limited and relatively new. The 2014 Sustainable Groundwater Management Act (SGMA) requires Groundwater Sustainability Plans and groundwater restrictions on high and medium priority basins. The Carson Valley hydrographic basin is not classified as a priority basin and as a result there are few laws, statutes, or codes that regulate the use of groundwater on the California side of the watershed. (California Department of Water Resources, 2020).

The Alpine Decree and prior appropriation determine rotation of surface water from the Carson River. However, the Alpine Decree does allow for the rotation and exchanging of water among ditches and users to improve water economy as long as the exchanges do not cause injury to other users. Through rotation, junior water rights are served as long as possible. In addition, the Alpine Decree allows for changes in the point of diversion, place of use, and manner of use. It should be noted that the process to change a point of diversion, place of use, and/or manner of use is an extensive and time consuming process.

Similar to the Alpine Decree, Nevada state water law allows for changes in the point of diversion, place of use, and manner of use for groundwater. Although there are numerous restrictions and

limitations, Nevada groundwater rights in the Carson River watershed can be bought, sold, exchanged, and moved. However, these changes can require an extensive and time consuming process, but ultimately do provide some level of flexibility in how water can be used. Arguably, existing laws and the Alpine Decree allow for several methods of water marketing within the watershed to increase the efficiency of water used.

Within the context of the Alpine Decree and state water laws, entities within the Carson River have effectively used existing water marketing mechanisms to maximize the use of water in the watershed. The following is a summary of some of these efforts:

- Farm Unit – Nevada Revised Statute (NRS) 533.040 §4 states that a surface water right in a federal reclamation project is appurtenant to the “entire farm” and that the place of use can be the “entire farm” rather than an “identifiable” place within the farm. Water usage on the farm cannot exceed what has been allotted through decrees. This statute allows agricultural surface water users in the Newlands Project flexibility to use water where it may be most beneficial rather than a specific location within the farm unit. Within the Carson River Watershed, the concept of the Farm Unit only applies within the Newlands project through the Truckee-Carson Irrigation District (TCID).
- Regionalization – Significant action has been taken in recent years to interconnect community water systems to maximize water availability and to utilize the most efficient sources of water. These activities include construction of regional water infrastructure and the completion of multi-agency, collaborative studies. Regional infrastructure project includes:
  - Douglas County regional water system – Through this system, water from the Town of Minden is distributed to Douglas County (specifically the East Valley, North County, and West Valley water systems), Indian Hills GID, and Carson City. This system is supported by miles of transmission mains, numerous water tanks, two booster stations, and interagency coordination.
  - Other system interties include:
    - Gardnerville Water Company – Town of Minden
    - Douglas County – Sierra Estates GID
    - Douglas County – Carson City
    - Carson City – Lyon County Utilities
    - Various interties between Douglas County’s different community water systems (i.e. the Foothill water system is connected to the Sheridan Acres system).
- Water Rights Dedications – Many community water systems require either a dedication or purchase of existing water rights for new water system connections or developments. Historically, 1.12 AFA of water per residential connection has been required to either be dedicated to the water utility or purchased from the water utility<sup>15</sup>. This dedication rate exceeds average water usage (see Table 3.3) providing each entity a theoretical buffer between their “paper water” and “wet water.” In addition, several water purveyors have indicated that they have acquired various surface water rights over time.
- Water Reuse – Numerous entities use reclaimed water in the Carson River watershed. There are numerous wastewater treatment plants (WWTP) that eventually dispose of

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<sup>15</sup> In recent years some utilities have decreased this water right requirement per residential dwelling unit. In addition, there is inconsistency between community water systems on how the transfer or purchase of water rights is administratively managed.

treated effluent to the Carson River watershed. WWTPs range from outdated facilities to modern membrane systems that are able to meet stringent effluent requirements. The following is a summary of different municipal treated wastewater that is discharged to the Carson River watershed.

- South Lake Tahoe PUD – STPUD pumps treated wastewater over Luther Pass (CA Highway 89) to Harvey Place reservoir in Diamond Valley (Indian Creek drainage, a tributary of the East Fork of the Carson River). Water is used for irrigation of agricultural crops in Diamond Valley. This system imports water from the Tahoe Basin / Truckee River watershed to the Carson River watershed.
- Douglas County Lake Tahoe Sewer Authority – DCLTSA pumps treated wastewater over Kingsbury Grade (NV Highway 207) to a storage reservoir in Carson Valley. Water is used for irrigation of agricultural crops in Carson Valley. This system imports water from the Tahoe Basin / Truckee River watershed to the Carson River watershed.
- Incline Village GID – IVGID pumps treated wastewater over Spooner Summit (US Highway 50) to the Carson Valley. Treated effluent is used for golf course irrigation, irrigation of agricultural crops, and wetlands disposal. This system imports water from the Tahoe Basin / Truckee River watershed to the Carson River watershed.
- Markleeville Public Utility District – MPUD disposes of treated effluent in infiltration/evaporation basins adjacent to Markleeville Creek.
- Minden Gardnerville Sewer District – MGSD stores treated effluent in the Carson Valley for irrigation of agricultural crops. MGSD can store effluent in a storage reservoir adjacent to the WWTP or in a privately-owned reservoir.
- Indian Hills General Improvement District – IHGID disposes treated wastewater effluent through golf course irrigation. Storage is primarily in golf course water features.
- Douglas County – Douglas County disposes of treated wastewater effluent through irrigation of agricultural crops. Douglas County is also permitted to use a rapid infiltration basin (RIB) for disposal. During winter months Douglas County stores treated effluent in a lined storage reservoir adjacent to the North Valley WWTP.
- Carson City – Treated wastewater from the Carson City WWTP is used for golf course irrigation and irrigation of agricultural crops at the Prison farm. During winter months Carson City stores effluent in Brunswick Canyon Reservoir.
- Lyon County – Lyon County operates two wastewater treatment plants (Rolling A and South Plant). Treated effluent is disposed on through golf course irrigation and groundwater infiltration via rapid infiltration basins.
- Silver Springs – The Silver Springs WWTP is operated by Lyon County and primarily discharges treated effluent to the Silver Springs Airport for infiltration and evaporation.
- Churchill County – Treated effluent from the Moody Lane WWTP is primarily disposed of through evaporation / infiltration basins. However, the facility is permitted to discharge to the Wade Drain. It should be noted that the Moody Lane WWTP is a membrane bioreactor treatment process which is capable of producing extremely high quality effluent.
- City of Fallon – The City of Fallon is permitted to discharge treated effluent to the New River Drain.

- NAS Fallon – The Naval Air Station is permitted to discharge treated effluent to the Lower Diagonal Drain.

In many ways, water users within the Carson River watershed are utilizing existing water marketing tools to maximize the benefits of the Carson River within the framework of the Alpine Decree and existing water laws. Numerous collaborative programs and projects are in place that have improved the use of Carson River water. Future projects and interagency efforts should attempt to maximize the availability of water for the benefit of the watershed.

## **5.2 Future Water Marketing Concepts**

The purpose of this section is to provide an overview of concepts that may be used for or as a component of future water marketing strategies. The following discussion focuses on very general concepts regarding how water from the Carson River can be removed, conveyed, stored, and how it can be later used. It is important to emphasize that this report assumes that any new water management strategy must satisfy the requirements of the Alpine Decree, state water law(s), and not negatively impact water users in the Carson River watershed. A more detailed discussion on how these concepts could be implemented is found in Chapter 6.0.

### **5.2.1 Surface Water Extraction**

#### **Induction Wells**

Induction wells are typically shallow wells constructed in close proximity to a surface water (lake, river, stream, etc.). From a water rights standpoint, the water pumped from an induction well is treated as surface water. As a result, surface water rights are assigned to induction wells. However, from a potable water standpoint, the definition and assumption that an induction well is surface water has significantly different implications. According to 40 CFR §141.2 groundwater under the direct impact of surface water (GWUDI) is defined as *any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as Giardia lamblia or Cryptosporidium, or significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions*. If water from an underground source is classified as GWUDI it must be filtered and disinfected according to the Surface Water Treatment Rule (SWTR) before it can be considered potable. If the water is not classified as GWUDI, it can be treated as groundwater and may not require any treatment prior to use. As a result, water from an induction well that exhibits the characteristics of the surface water must be treated prior to potable use, resulting in significantly higher cost for construction and operation of infrastructure.

Induction wells may be used to extract surface water from the Carson River for storage and water use or potentially for direct use. From a water marketing infrastructure standpoint induction wells could be used to pump water to a storage system (see Section 5.2.3 below) so that water can be stored for later use or for direct use where needed. Induction wells are fairly common in the Carson River watershed. As discussed in Section 3.2, Douglas County, Carson City, and Lyon County currently utilize induction wells to supply potable water. It should be noted that these induction wells are not classified as GWUDI.

#### **Pumped Diversions**

Pumped diversion requires infrastructure to pump surface water directly from a surface water source. A surface water right is required to pump water from a surface water source. Pumped water can be discharged into a gravity conveyance system or into a piped pressure system for deliver to the point of use (see Section 5.2.2). There are several different approaches to pumped diversions that can be used depending on various design factors, including quality of water and capital cost. Options include installing suction piping directly into the surface water with only a coarse screen on the suction line to screen large debris, plant, animals, etc. from being pumped into the system. Another option is to install the pump suction in a well screen constructed in the riverbed. The screen is placed in gravel pack and/or clean aggregate which can provide an effective screen to not only debris, plants, and animals, but can provide some removal of sediment and fine debris.

## **Surface Diversions**

Surface diversions often consist of diversion structures that redirect a portion of flow into another flow channel. Surface water rights are required to use a surface water diversion. Surface diversions are common in agricultural irrigation systems where water can be diverted to different locations through diversion dams, headgates, check dams, etc. In most cases various diversion structures are connected through surface and gravity pipe conveyance systems.

### **5.2.2 Water Conveyance**

#### **Surface Conveyance**

Surface conveyance systems typically consist of a series of diversion structures, canals, and/or ditches used to move surface water by gravity to where it is used. The Carson River watershed already utilizes a large network of diversion structures, canals, and ditches for irrigation purposes. The Newlands project constructed a large surface distribution network that the Tahoe Carson Irrigation District operates and maintains.

In relation to potential water marketing concepts, existing or new diversions/canal/ditches/ could transport surface water from the Carson River to a storage system (see Section 5.2.3 below) for water to be stored and used at a later time.

#### **Piped Conveyance**

Like a surface conveyance system, a piped conveyance system transports water from its source to where it is used. Unlike a surface conveyance system, piped conveyance can be designed and operated as gravity or pressure systems. Gravity systems operate similar to a surface conveyance system, pipes are installed at grades that allow water to flow from one point to another by gravity. In a gravity pipe system, water levels in the pipe are often less than the diameter of the pipe<sup>16</sup>. Gravity systems operate like canals or ditches, with the primary difference being that a piped gravity system is enclosed, allowing the system to be buried but less accessible. Municipal sewer systems rely on gravity pipe systems extensively to collect raw wastewater from system users. Piped gravity systems can decrease water losses (through evaporation and leakage) and reduce

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<sup>16</sup> The relationship between the depths of flow to the diameter of the pipe is often referred to as the d/D ratio, where d is the depth of flow and D is the diameter of the pipe. Acceptable d/D ratios typically range from 0.5 to 0.75, meaning that the depth of the flow never reaches the diameter of the pipe.



the risk of contamination but may have a higher capital cost when compared to surface conveyance systems.

Unlike gravity systems, pressure pipe systems are designed and operated so that the depth of flow in the pipe is the same as the diameter, resulting in the water pressure in the pipe exceeding atmospheric pressure. The energy to pressurize the water in the pipe is typically provided by pumps or when the water source is at a higher elevation than the pipe, resulting in water pressure. A pressure pipe conveyance system is generally required when water must be delivered to higher elevations (via pumping) or when pressure is required at the delivery point. Potable water systems use pressure pipe systems to deliver pressurized water to system connections at varying elevations.

### **5.2.3 Water Storage**

#### **Aquifer Storage**

Aquifer Storage (which is also known as managed aquifer recharge (MAR)) is a manmade, managed process used to replenish groundwater aquifers. Aquifer storage and recovery (ASR) is the process of replenishing an aquifer with ability to use the stored water later. Aquifer storage is normally achieved through supplementing natural aquifer recharge through water spreading, infiltration basins, or injection wells. Water can later be recovered through extraction wells, or in some cases return flows to a surface body (US Environmental Protection Agency, 2018). To implement an aquifer storage system there are both administrative / permitting requirements and physical infrastructure requirements. In Nevada, administrative requirements include permitting requirements through the Nevada Division of Water Resources and potentially the Nevada Division of Environmental Protection Bureau of Safe Drinking Water (if stored water will be used for potable purposes). Physical infrastructure can vary greatly based on the method of recharge and extraction. Surface water injection requires construction of injection wells. Surface water infiltration requires construction of infiltration basins or water spreading basins. Water is typically recovered through wells but there is some evidence that proper hydrogeological conditions and proximity to surface waters can lead to natural return flows to a surface water body (Niswonger, Morway, Triana, & Huntington, 2017).

#### **New Reservoir Storage**

As discussed in Section 2.5.2 there have been numerous historical proposals to construct new reservoirs in the Carson River watershed. Most of these historical proposals were to construct reservoirs in existing stream or river channels (onstream reservoirs). Given the environmental impacts and cost of these projects, it is assumed that constructing an onstream dam and reservoir is not a feasible option. As a result, only offstream reservoir storage alternatives are considered in this report. Offstream reservoirs may have a smaller environmental impact than onstream reservoirs. In addition, there is likely a larger variety of suitable locations and construction options to develop new offstream reservoirs.

Depending on various factors, including storage capacity and topography, an offline reservoir can be constructed using dams, levees, embankments, and/or excavations. The new reservoir can be lined to reduce water loss to seepage or can be unlined to allow (or even encourage) seepage. The reservoir can be filled through various extraction and conveyance methods (see Sections 5.2.1 and 5.2.2) via gravity through canals, ditches, and pipes, or water can be pumped to the new reservoir.



Offstream reservoirs are somewhat common in the Carson River watershed. Existing offstream reservoirs are largely used for agricultural uses and storage of treated wastewater effluent.

### **Expand Existing Reservoir Storage**

As shown in Table 2.7 and discussed in Section 2.5.1, outside of Lahontan Reservoir existing surface water storage in the Carson River watershed is limited to numerous small reservoirs. In some cases, it may be possible to expand existing dams to increase the storage capacity of some of these existing reservoirs. Expanding existing reservoirs may pose numerous challenges including environmental impacts. In addition, many of the smaller reservoirs are privately owned which could lead to complex contractual requirements.

#### **5.2.4 Water Banking**

Water banking is a concept where water right owners can voluntarily and temporarily transfer the use of their water rights to another owner. Water banks allow regional water users flexibility to exchange water, to mitigate the short-term effects of drought (Sanchari Ghosh, 2014). Additionally, water banking can better sustain water users and maintain a strong level of local involvement in water resource strategies. It is a particularly attractive concept to private water rights owners, who can generate income from these transactions and have their water rights protected through relationships with public entities. In return, public entities are benefitted by the ability to ensure that public water is being put to the most beneficial uses. As a result, water banking may provide the greatest benefit to municipal water users in the Carson River watershed. Lastly, adopting a water banking system allows for a more transparent way for willing water rights holders to advertise their water rights in an equal opportunity environment and allows for multiple beneficiaries (Lewis, 2021).

Especially in drought prone areas of the western United States, water banking presents a real water marketing solution to meet increased social, environmental, and economic demands. In 2020, the Utah State Legislature approved a pilot program to begin studying how water banking can add flexibility to rigid water rights, provide additional water to meet increased municipal and industrial demand, and promote greater collaboration amongst the water user community (Lewis, 2021).

There are also challenges to be considered with using a water banking concept. Due to high transaction costs, owners and consumers have been slow to evolve the water market in response to increasing water scarcity (Sanchari Ghosh, 2014). The persistence of historical institutions that control water allocation create strong barriers to the expansion of new water marketing connections. Therefore, strong governmental support of a water banking program would be beneficial to ease the creation of a fluidly moving program.

In the Carson valley, for example, water banking could be used as an application of managed aquifer recharge. Due to the nature of the semi-arid region, using water banking in conjunction with MAR can minimize evaporation losses and promote better regional water storage. A credit system could be developed where users can deposit water storage in years where immediate demand is low and withdraw from the system later. Subsurface storage is insulated from significant evaporation losses, which makes it possible for water to be accounted for more accurately (Gonzales, Dillon, Page, & Vanderzalm, 2020).

Developing a contract or statutory water bank would require the identification of a service area, legally enforceable agreements to protect water rights owners and public interest, and a structure of governing members to agree on how water transactions may take place. This structure could take place in many forms but would require regulatory time and effort to organize a system that makes sense for the Carson River watershed. One way to simplify transactions is to create term-limited agreements, so that ownership does not change for banked water rights. If MAR is used in a banking system, groundwater transactions should be distinguished from surface water transactions. The Utah Water Bank has utilized a combination of these strategies to create a pilot water bank that could be a potential source of information for watershed stakeholders to begin establishing a water banking structure. It is important to note that implementation of a water banking system in the Carson River watershed would need to conform to the requirements and limitations of the Alpine Decree.

Small scale, restricted types of water banking are currently used in the Carson River watershed. For example, water right owners may dedicate water rights to a municipal entity for use with an agreement that the private entity can use that water right in the future for land development. These agreements differ significantly from regional or statewide water banking structures that offer more opportunities for water rights owners and water users.

## 6.0 CONCEPTUAL ALTERNATIVES

Section 5.2 presented general concepts that could be used to enhance and add to existing water marketing strategies in the Carson River watershed. The following sections provide examples of how these general concepts could be implemented in the Carson River watershed. It should be noted that the following conceptual alternatives are not an exhaustive list of water marketing alternatives. Presented alternatives simply provide an outline of conceptual water infrastructure improvements that could be used to improve and enhance water marketing in the watershed. In addition, due to the cost and regulatory complexity of each of these alternatives, it is not likely that any alternative will be implemented in the near future. These alternatives should be viewed as long-term planning concepts that can be used to help guide current planning and policy discussions.

### 6.1 Conceptual Alternative 1 – Managed Aquifer Recharge Site 1

As discussed in Section 5.2.3, MAR and ASR are water storage methods that can be used to either replenish groundwater aquifers, or store water in more shallow parts of the aquifer, for later use. For conceptual purpose, a potential location where this method could be implemented near Stagecoach is shown in Figure 6.2. This site, located north of the Carson River (in Segment 7C as delineated by the Alpine Decree), is made up of Asolde-Patna complex soil (USDA-NRCS, 2020). This area was identified as a potential infiltration site because of the potential high transmissivity (infiltration) rate of the soil per the soil survey. The extended length of the site (2.5 miles) allows for variation and flexibility in constructing multiple infiltration basins where water can be spread, as the spreading location will affect the potential for aquifer storage or potential delayed return flows to the Carson River. Depending on the geologic conditions and gradient of the aquifer, two scenarios are possible. The first is that infiltrated water primarily returns as surface water flow to the Carson River downstream, later in the season. This scenario could be beneficial for when river flows naturally decrease late-season. The second scenario is that the water infiltrates into the groundwater aquifer, augmenting natural aquifer recharge.

A general assumption is that the closer in horizontal distance to the river that water is infiltrated, the more likely that it is to return as river flow downstream, and the further away the water is infiltrated from the river, the more likely it is that groundwater recharge will occur. However, extensive percolation and infiltration testing would be required to confirm the soils transmissivity. Testing and modeling would also be necessary to understand the boundary conditions of the underground aquifer, including the direction of gradient that will ultimately decide where infiltrated water flows.

To capture surface water from the River, an induction well(s) would need to be installed along the river. Water right(s) would need to be acquired to allow for pumping surface water from the inductions well(s). A potential location for the induction well is shown in Figure 6.2. A pipeline (approx. 3.4 miles in length) would need to be constructed to transfer the water pumped from the induction well to the infiltration site. The infiltration site would consist of a series of constructed, earthen infiltration basins. At this potential location, it is assumed that the groundwater gradient flows downward from the infiltration site to the northeast. In this case, excess water would flow towards the Stagecoach area, in the Dayton Valley Hydrographic Unit. Based on this assumption, groundwater wells could be constructed (or existing wells could be used) near Stagecoach, to extract the water stored in the aquifer.

Although the constructed components represent a significant capital cost, this alternative could provide a more stable water source for the Stagecoach area and could become a water source for Silver Springs in the future, a water-deficit area (via a proposed "Highway 50" regional pipeline).

MAR has been successfully used in semi-arid regions globally as a solution to overcome water scarcity. However, there are still also potential issues associated with MAR, such as clogging infiltration basins. High rates of sedimentation during infiltration periods can reduce the infiltration basin capacity over time. As a consequence, the recharge rate in areas of MAR can decrease over time, which can lead to the abandonment of an aquifer recharge project. Proper maintenance, including routinely scraping top layers of the infiltration site, can extend the useful life of the infiltration basins (Mohammed Zaidi, 2020).

To implement this alternative an existing entity or new entity would need to be established to manage the new infrastructure, distribute stored water to participating entities, and manage the legal contracts and regulatory hurdles to distribute water potential across jurisdictional boundaries. This alternative could operate under a water banking framework to provide the broadest range of water marketing opportunities.

## **6.2 Conceptual Alternative 2 – Managed Aquifer Recharge Site 2**

The Douglas County-Lake Tahoe Sewer Authority (DCLTSA) owns bentonite lined storage reservoirs northeast of Gardnerville near Johnson Lane, (in Segment 2 as delineated by the Alpine Decree). This is a potential managed aquifer recharge location using infiltration basins. In this alternative, some of the existing infrastructure at the DCLTSA reservoirs may be repurposed. Specifically, the DCLTSA reservoirs and part of the existing pipeline that currently runs from the DCLTSA treatment plant near Lake Tahoe to the DCLTSA reservoirs. The existing pipeline transfers treated effluent from the east side of the Lake Tahoe basin, over Kingsbury grade, and across Muller Lane, to discharge the treated effluent to various irrigation canals, and specifically, to the Bently reservoir, located near the unused DCLTSA reservoirs. In order not to mix treated effluent with excess canal or river water, a new pipeline would be constructed from nearby canals to the unused portion of the DCLTSA sewer line near the Bently Reservoir. Figure 6.3 shows a conceptual layout for this alternative.

There are numerous factors to be considered with an infiltration option at this location. It is important to note that these basins were historically used for treated wastewater disposal and storage and were constructed with a bentonite clay liner. Although this bentonite lining is old and likely desiccated, it would likely result in poor transmissivity for infiltration basins. In addition, there is potentially soil contaminants remaining from the wastewater disposal operation that may present hurdles to this alternative. To transform the reservoirs into infiltration basins, the remaining clay liner would need to be removed. Removal and disposal of the clay liner is not an extensive process, however, removal of more than the clay liner may be required to address potential contamination. In addition to rehabilitating and remediating the existing ponds, it would be necessary to construct a second pipeline that would extend from a canal or nearby water source (likely the Allerman Canal) to the discharge at the infiltration basins (piped conveyance as discussed in Section 5.2.2). For this alternative, an intake and pumping system would be constructed on the canal at the point of diversion to pump water into the infiltration basins. As the infiltration basins are at an elevation higher than the river, long -term pumping could incur significant energy costs. Similar to Alternative 1 (MAR Site 1), infiltration testing and other site testing would be required to better understand the site specific hydrogeologic conditions.

However, it is important to note that this is not likely to be an annual operation, but rather an intermittent diversion of water when flows are higher than normal. Extraction well(s) would be required to pump stored water from the aquifer. Depending on water quality and intended use, extracted water could be diverted into a community water system in the Carson Valley or could be pumped back into a canal for use downstream.

Due to numerous septic tanks in the area and a historical lack of a nitrogen removal process at DCLTSA, high groundwater nitrate concentrations are documented in the immediate area around the infiltration basins and in the nearby Johnson Lane area. Implementing a managed aquifer recharge system may result in further distribution of the nitrate contamination, potentially contaminating a larger portion of the aquifer. However, as the infiltration process continues over time, the finite amount of nitrate may become diluted, possibly creating a long-term benefit for the east side of the Carson Valley. Another potential solution to mitigate the presence of nitrate in the immediate vicinity of the DCLTSA ponds would be to remove the adjacent contaminated soil before allowing infiltration to begin. However, due to the significant area of soil that would require removal, this may be a less feasible and more costly option. Overall, the main beneficiary to this alternative is Douglas County, who would see potentially increased groundwater capacity and improved groundwater quality over time.

Another method of utilizing these existing ponds would be to refurbish the existing liner and use the basins as surface-water storage. Since the existing clay liners have been dry for several years, it is assumed that the existing clay liner should be removed. Additionally, it is important to note the potential for contaminants from the sites previous use as a treated wastewater storage facility. Pollutants and chemicals in the existing bentonite liner and soils may lead to the contamination of the water stored in the existing ponds. However, the benefit of this method would be an increase in surface storage and a more direct return of the water to the Carson River in times of low flow, when compared to recharging the aquifer. In order to utilize these basins as surface-water storage, a pump would need to be installed at the basin itself in order to move the water from the basins back into the Allerman Canal. It would be determined the most economically feasible course of action is to utilize the same pipe that brought water to the basins to return the water back to the canal. A downside of the method of utilizing the basins to store surface-water is that it will increase water loss due to evaporation, when compared to Managed Aquifer Recharge. Additionally, this method will involve the relining of the basins and installation of another pump which may bring the cost of this sub-alternative to an amount that makes this approach undesirable.

Using the existing DCLTSA ponds for infiltration or surface water storage would require surface water rights to pump water to the ponds. An existing entity or new entity would need to be established to manage the new infrastructure, distribute stored water to participating entities, and manage the legal contracts and regulatory hurdles to distribute water potential across jurisdictional boundaries. This alternative could operate under a water banking framework to provide the broadest range of water marketing opportunities. This alternative could potentially be used to provide water to community water systems but given the potential for contamination may be more suitable to provide stored water for agricultural uses.

### **6.3 Conceptual Alternative 3 – Expanding Existing Reservoir Storage**

Another potential concept is to expand existing reservoirs. Expanding existing reservoir storage has the potential to simplify means of reusing excess water, as there is already existing infrastructure that supports beneficial use of the stored water. Due to the limited storage in the

Carson River watershed, expansion of Lahontan Reservoir or Mud Lake are the two existing reservoirs considered for this alternative. Operation of expanded reservoirs may likely be able to operate under the same regulatory framework as current operations with additional water available for storage to potentially a larger base of water right owners. The following paragraphs discuss the feasibility and implications of expanding either reservoir.

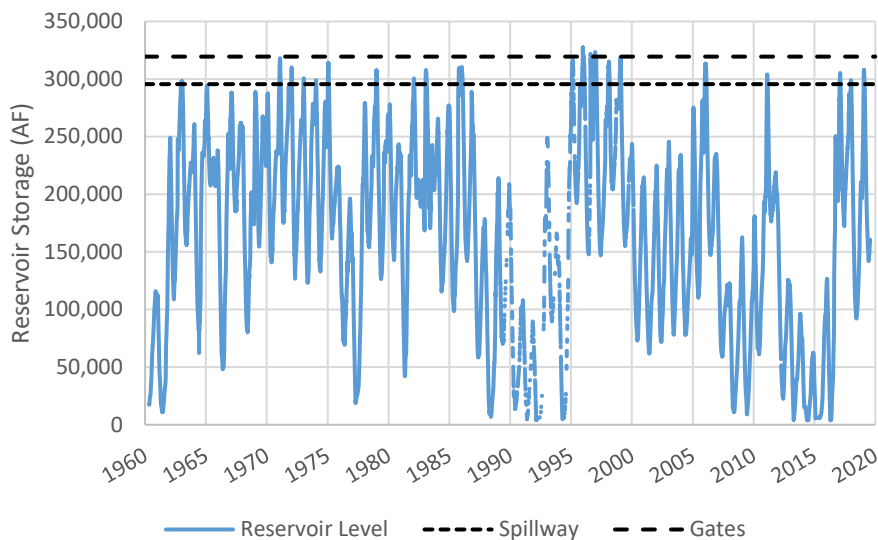
**Mud Lake:** Mud Lake is a privately owned reservoir in the upper Carson Valley with a surface area of approximately 290 acres. The reservoir is filled with water from the West Carson River and Indian Creek. Water from the West Carson River is diverted to the Indian Creek drainage through a series of ditches and diversion structures. Discharge from Mud Lake flows back into the West Carson River. Figure 6.4 shows potential lake level contours that would result from increasing the height of the Mud Lake dam. Increasing the height of the dam would require construction of a second dam or embankment on the east side of the reservoir. Without a second dam in this location, increasing the water level would result in water spilling on the east side of the reservoir into Indian Creek and eventually draining into the East Carson River. Therefore, this option would not only require the expansion of the existing dam but would also require construction of a secondary dam to prevent overspill, incurring a significant construction cost. However, the upstream location of Mud Lake allows for many beneficiaries, as it would essentially act as increased water storage for all downstream users. Therefore, in high demand periods, the water could be used at lower points in the Carson River watershed.

**Lahontan Reservoir:** Lahontan Dam was constructed in 1905 as part of the Newlands Project. The dam is constructed on the Carson River creating a reservoir area of approximately 14,200 acres at full pool. In addition to damming the Carson River, the Truckee-Carson canal flows into Lahontan Reservoir near the dam. The Truckee-Carson Canal originates at Derby Dam on the Truckee River and transfers water from the Truckee watershed to the lower Carson River watershed.

Expansion of Lahontan Reservoir would require expansion of the existing dam but would also require construction of a secondary dam or embankment immediately to the east of the current dam (see Figure 6.4). In addition, reservoir expansion would also require modifications to US Highway 50 along the north shore of Lahontan Reservoir. The proximity of US Highway 50 to the proposed dam area creates challenges of pooled water approaching or extending beyond the current road grade. Expansion of Lahontan reservoir primarily benefits Churchill County residents, as the additional water storage would remain at the end of the watershed, for downstream users only.

Based on a preliminary review of historical data from the National Water Information System (US Geological Survey, 2020), between 1960 and 2019, Lahontan Reservoir has only filled to 295,500 AF (the spillway level) 808 days during the period (see Figure 6.1). In other words, Lahontan Reservoir fills to capacity only 4% of the time. There are several factors that influence this, including operational strategies and downstream water demands. But it may also indicate that the watershed does not have the capacity to routinely fill an enlarged Lahontan Reservoir.





**Figure 6.1 – Historical Lahontan Reservoir Storage**

#### **6.4 Conceptual Alternative 4 – Regional Potable Water Managed Aquifer Recharge**

A proposed regional pipeline along Highway 50, currently in planning stages, will hydraulically connect public water systems from Dayton to Stagecoach (and eventually Silver Springs). This alternative would construct a well or series of wells adjacent to this regional pipeline. During periods low demand and excess potable water availability, water from the regional pipeline could be injected into the constructed well(s) near Stagecoach. Then, during periods of high demand, and limited excess water, stored water could be pumped from these wells into the regional pipeline, for use in the regional water system. This would allow water purveyors, including Lyon County Utility District, flexibility in being able to allocate the additional resources to where it is most needed. For example, stored water could be used in Silver Springs (if the proposed pipeline is extended to Silver Springs), an area that is commonly affected by water deficit and drought. Figure 6.6 shows a conceptual layout of this alternative.

The capital cost of this alternative is likely significantly less than other alternatives due to the already proposed pipeline infrastructure that can be utilized. The remainder of capital cost would be for drilling and construction of groundwater injection/extraction wells in Stagecoach, and a possible extension of the regional pipeline to Silver Springs. Depending on the in-line pressure of the new pipeline, a combination of gravity flow and pumping may be utilized to move water throughout the system, potentially decreasing overall operation and pumping costs.

This alternative would inject potable water, potentially from multiple sources, into the aquifer in the Stagecoach area. There is a risk that this approach could contaminate potable water. Contamination could occur through various mechanisms. If the aquifer has existing water quality problems (ie. arsenic, nitrate, etc.), injecting potable water in the aquifer may result in contamination of the potable water. Another potential water quality issue is mixing water with different water chemistry with the existing aquifer. Mixing these water could lead to changes in pH, or leaching of minerals that were stable prior to introducing different water chemistry. These issues can be complex and must be evaluated prior to implementation of this (or a similar) alternative.

Conceptually, there are multiple beneficiary stakeholders to this alternative. Residents of Dayton, Stagecoach, and potentially Silver Springs would benefit from potentially more robust water supplies. In addition, water suppliers could experience decreased source water demand during peak periods since downstream users may be able to rely on water that was stored locally during low demand periods.

This alternative may be able to utilize existing water rights held by community water systems or transferred to community water systems providing water to the regional water system. To implement this alternative an existing entity or new entity would need to be established to manage the new infrastructure, distribute stored water to participating entities, and manage the legal contracts and regulatory hurdles to distribute water potential across jurisdictional boundaries. This alternative could operate under a water banking framework to provide the broadest range of water marketing opportunities.

## **6.5 Conceptual Alternative 5 – Combined Flood Control and Groundwater Recharge**

The Ruhenstroth subdivision in Douglas County occasionally experiences flooding on Smelter Creek, an ephemeral stream which flows through the subdivision. The stream is typically dry, with seasonal runoff and storm runoff occurring during thunderstorms. Although the stream rarely has sustained flows, when it does, short-duration, high-flow conditions can occur. Currently, the subdivision lacks a conveyance system to subdue flow and stabilize a path for flow, so significant storms can bring damage to homes, drainage structures, and roads within the floodplain. In addition to flooding risks, the local aquifer in Ruhenstroth has been experiencing declining static groundwater levels and nitrate contamination due to the concentration of septic tanks in the area.

An evaluation completed by RO Anderson, considered flood control alternatives and proposed a flood control detention basin just east of the Ruhenstroth subdivision. RO Anderson's evaluation proposed a flood control facility basin sized for a 100-year storm event that would equalize outflow so that it is contained within the existing channel (R.O. Anderson, 2016). The proposed infrastructure would include a dam control structure, consisting of an embankment, a low-level primary outlet, and an emergency spillway.

By significantly limiting discharge to the subdivision, a flood control structure or facility would protect downstream homes, and effectively remove the entire subdivision from the floodplain (R.O. Anderson, 2016). Conceptually, the excess flow captured in the reservoir structure could also be infiltrated within constructed basins or downstream in Smelter Creek to provide groundwater recharge and flushing to the overall groundwater aquifer. These same basins could also be used as infiltration basins. Excess surface water flows from nearby canals or the Carson River could be pumped into the stormwater detention basins in times of low surface water demand and during periods of low flood risk. For this alternative, it is assumed that induction wells would be constructed near the Carson River. When the infiltration/stormwater basins could not be used for infiltration (during flooding or seasonal runoff), the induction well(s) could potentially be used as a water source for nearby water systems, including the Gardnerville Ranchos GID. Use of infiltrated water would likely be limited to the domestic wells located in the Ruhenstroth area. It is important to note that storage availability for flood mitigation should always be maintained to ensure that the primary use of the control facility is to protect nearby homes from flood damage. Figure 6.7 shows the conceptual layout of the dam, induction well, and waterline.

The direct beneficiaries of this conceptual alternative include the residents of Ruhenstroth and Douglas County, by reducing the potential damage to public infrastructure, and providing overall

environmental improvements to the condition and storage levels of the groundwater aquifer. However, there is limited regional benefit to downstream users. Douglas County has attempted to partially fund these improvements in the past through FEMA's Hazard Mitigation Grant Program. However, funding efforts were unsuccessful, in part due to the low benefit cost ratio for the project. In addition, constructing dams on Federally owned property is difficult and time consuming, likely leading to multiple years to obtain permits and easements.

It should be noted that this alternative has been developed primarily with the intent of providing flood mitigation to the Ruhenstroth area. This community faces a significant flood threat during severe storms and their community would benefit greatly from the proposed flood control structures. This Alternative does not provide significant water storage to the Carson River watershed water-users and it does not help capture significant excess flow in the water system. However, if the construction of this Alternative could be covered under largely through FEMA the Ruhenstroth community would benefit significantly from this flood mitigation. But Carson River consumers would not experience a great increase in water storage or in the capturing of excess river flow.

## **6.6 Conceptual Alternative 6 – New Reservoir Storage**

The Bing Pit, situated at the corner of Bing Road and Kimmerling Road in Douglas County, is an active gravel pit that is being utilized by Bing Materials for construction material and fill extraction. The pit is nearing the end of its useable life and it is unknown what remediation is planned for the pit. With the expansive area and an already excavated pit, a potential solution would be to fill the pit with surface water from the West Fork of the Carson River.

This alternative would require constructing a pumped diversion on the West Fork of Carson River and a transmission pipeline to the existing gravel pit. It is anticipated that groundwater recharge would occur through infiltration. However, depending on the depth of the stored water in the pit, return flows to the West Fork of the Carson River could be via the constructed transmission pipeline either through gravity or pumping.

Reservoirs have the potential to increase surrounding property value to homes and can add aesthetic and recreational resources for nearby residents (Sarah Nicholls, 2018). Recreationally, the reservoir could potentially serve as a new neighborhood location for boating, fishing, swimming, walking, and attract other regional park-goers to the area. The Sparks Marina in nearby Washoe County came about in a similar way to the proposed reservoir, as it was originally a deep gravel pit that became filled during the 1997 Truckee River flood. Over time, the marina has become a community staple, providing a place for youth sports, community events, university clubs, and general day use. Set in a geographically similar area as the Sparks Marina, a recreational reservoir in the Gardnerville Ranchos could be a significant addition to the public parks and green spaces in Douglas County. However, as the surface area of the pit is approximately 100 acres, and water depth of the reservoir would be approximately 40 feet, almost one billion gallons of water will be required to maintain the potential new reservoir as a recreational area. In a region prone to drought and water deficit, it is possible that this excessive amount of water could be allocated more usefully elsewhere in the region.

A significant challenge associated with this alternative is that water to fill the proposed reservoir could potentially be better utilized elsewhere in the watershed and excess flows do not occur on an annual basis, meaning there will be periods of time that no flow is available to direct to the reservoir. This will require increased effort by Douglas County to allocate enough resources to

keep the reservoir full enough for recreational benefits. Alternatively, the reservoir could potentially be operated only in years of excess flow, but this would likely result in stagnant water that attracts vectors and becomes an unsightly area. Water stagnation is not a desirable outcome and could present serious problems with this alternative.

The possible layout of a waterline and pumping facility is shown in Figure 6.8. If a new reservoir is constructed for water storage, multiple communities downstream could benefit from increased regional water capacity through groundwater infiltration and return flows from the reservoir to the West Fork of the Carson River. However, the recreational benefits of the reservoir will likely be more beneficial to Carson Valley.

To implement this alternative an existing entity or new entity would need to be established to manage the new infrastructure, distribute stored water to participating entities, and manage the legal contracts and regulatory hurdles to distribute water potential across jurisdictional boundaries. This alternative could operate under a water banking framework to provide the broadest range of water marketing opportunities.

## 6.7 Summary Table

The overall advantages and disadvantages to each conceptual alternative are shown in Table 6.1. It is important to note that each of these alternatives have been explored for conceptual purpose only, and will require significant investigation, study, design, funding, construction, operations, and maintenance to successfully implement and operate. Similarly, no single concept will be implemented on all years, and negate other water strategies currently in use. These strategies are intended to be used intermittently, during high flow, low demand years, as complementary resources in the Carson River watershed. Ideally, an appropriate water strategy will result in benefits to multiple communities in the region and lessen overall water stress on the region in drought years.

**Table 6.1 – Summary of the presented conceptual alternatives**

	<b>Conceptual Alternative</b>	<b>Advantage</b>	<b>Disadvantages</b>
1	Managed Aquifer Recharge Site 1	Increased regional water storage, increased groundwater storage, simple operation	Potential clogging of infiltration basins, potential water contamination, limited nearby water users, pumping costs
2	Managed Aquifer Recharge Site 2	Increased regional water storage, Potential use of existing infrastructure, Potential groundwater quality improvements	Not near water-deficit area, pumping costs, Known site contamination, Potential site remediation
3a	Expand Existing Reservoir Storage – Mud Lake	Increased regional water storage, Use of existing infrastructure, No pumping costs, Simple operation	Existing facilities privately owned, Extensive improvements required, High capital cost and design requirements

3b	Expand Existing Reservoir Storage – Lahontan Reservoir	Increased local water storage	Limited beneficiaries, Extensive improvements required, Extremely high capital cost and design requirements, Limited ability to fill reservoir
4	Potable Water Managed Aquifer Recharge	Increased regional water storage, Increased groundwater storage, Simple operation, Potential use of proposed infrastructure, Low capital cost, Close proximity to water-deficit area	Potential water contamination
5	Combined Flood Control and Groundwater Recharge	Flood mitigation, Increased local groundwater storage, Potential for FEMA grants, Potential groundwater quality improvements, Potential for regional potable use	Limited groundwater storage beneficiaries
6	New Reservoir Storage	Increased surface water storage, Increased groundwater storage, Potential for recreational opportunities	Pumping costs, High operational requirements, High capital cost, Potential for water stagnation

## 6.8 Opinion of Probable Cost

Table 6.2 provides a summary Class 5 engineer's opinion of project cost for each alternative. It is assumed that presented costs will be a one-time capital cost for the CWSD or other entities that may consider implementing these alternatives. Presented costs do not include costs for further project planning, pre-design site investigations, design, permitting, easements, and ongoing maintenance and operations.

Engineer's opinions of probable costs are presented for each alternative. It should be noted that the presented opinions of probable costs are strictly conceptual in nature and may differ significantly from actual construction costs. These costs reflect the engineer's impression of material, equipment, labor, etc. at the time of the estimate based on experience and judgement in applying presently available data. The engineer has no control over cost of labor, materials, equipment, competitive bidding practices, market conditions, tariffs, costs associated with funding packages, inflation, etc. Thus, the engineer cannot warrant that the actual project construction costs will not vary from the engineer's opinion of probable cost. Generally, engineer's concept/study level opinion of cost (Class 5 estimate) is -30% to +50% of actual costs.




**Table 6.2 – Opinion of Probable Cost**

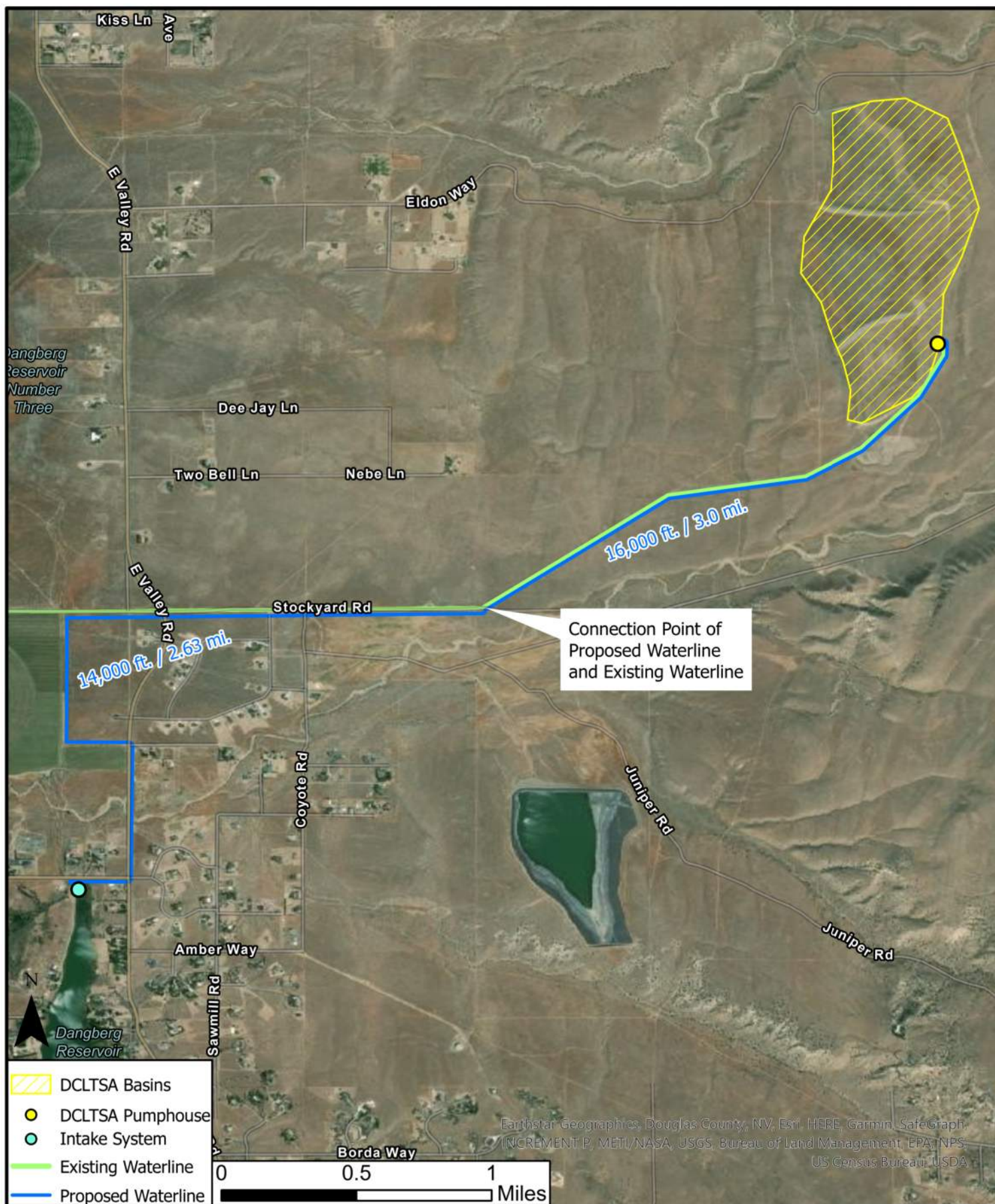
<b>Conceptual Alternative</b>	<b>Total Cost</b>
Managed Aquifer Recharge Site 1	\$12,000,000
Managed Aquifer Recharge Site 2	\$12,900,000
Expand Existing Reservoir Storage – Mud Lake	\$11,600,000
Expand Existing Reservoir Storage – Lahontan Reservoir	\$59,000,000
Potable Water Managed Aquifer Recharge	\$6,800,000
Combined Flood Control and Groundwater Recharge	\$16,200,000
New Reservoir Storage	\$18,600,000

Each of the conceptual alternatives presented in this report require significant permitting, regulatory review, and have very high capital costs. Because of these issues, it is not likely that any of these alternatives will realistically be implemented in the near future. However, policy makers, water managers, etc. should consider these alternatives and other long-term planning concepts in their routine planning efforts to help adapt to changing conditions in the Carson River watershed.



 <p><b>LUMOS</b> &amp; ASSOCIATES 308 N. CURRY ST. SUITE 200 CARSON CITY, NV 89703 PH. (775) 883-7077 FAX (775) 883-7114</p>	Carson Water Subconservancy District			Date:	2/17/2021
	Conceptual Alternative 1 Managed Aquifer Recharge near Stagecoach			Scale:	1 : 48,000
	Stagecoach	Lyon	NV	Job No:	9834.000
				Figure:	6.2





- DCLTSA Basins
- DCLTSA Pumphouse
- Intake System
- Existing Waterline
- Proposed Waterline



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Carson Water Subconservancy District

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**Conceptual Alternative 2**

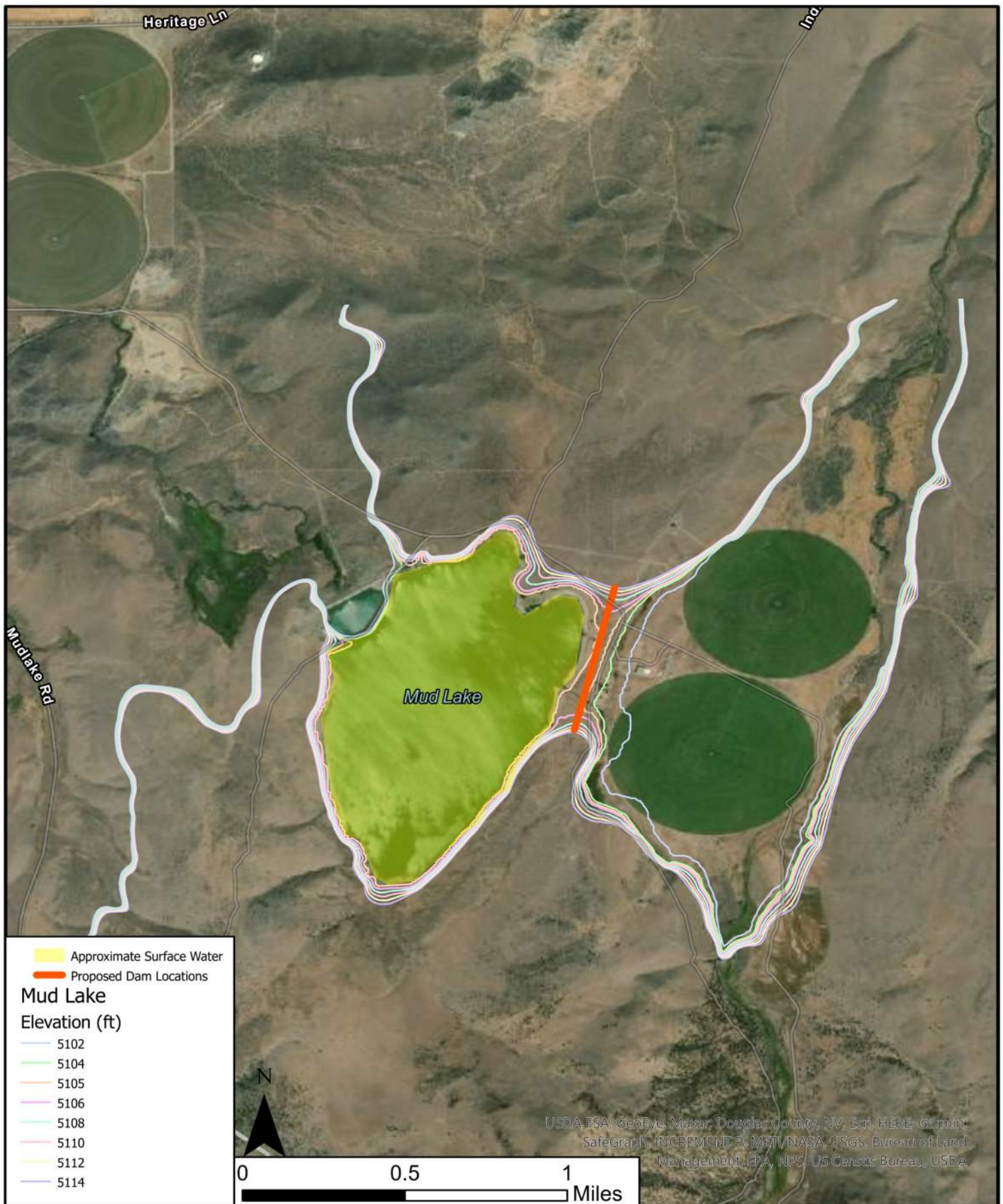
**Managed Aquifer Recharge near Johnson Lane**

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Gardnerville      Douglas      NV

Date:	2/17/2021
Scale:	1 : 30,000
Job No:	9834.000
Figure:	6.3



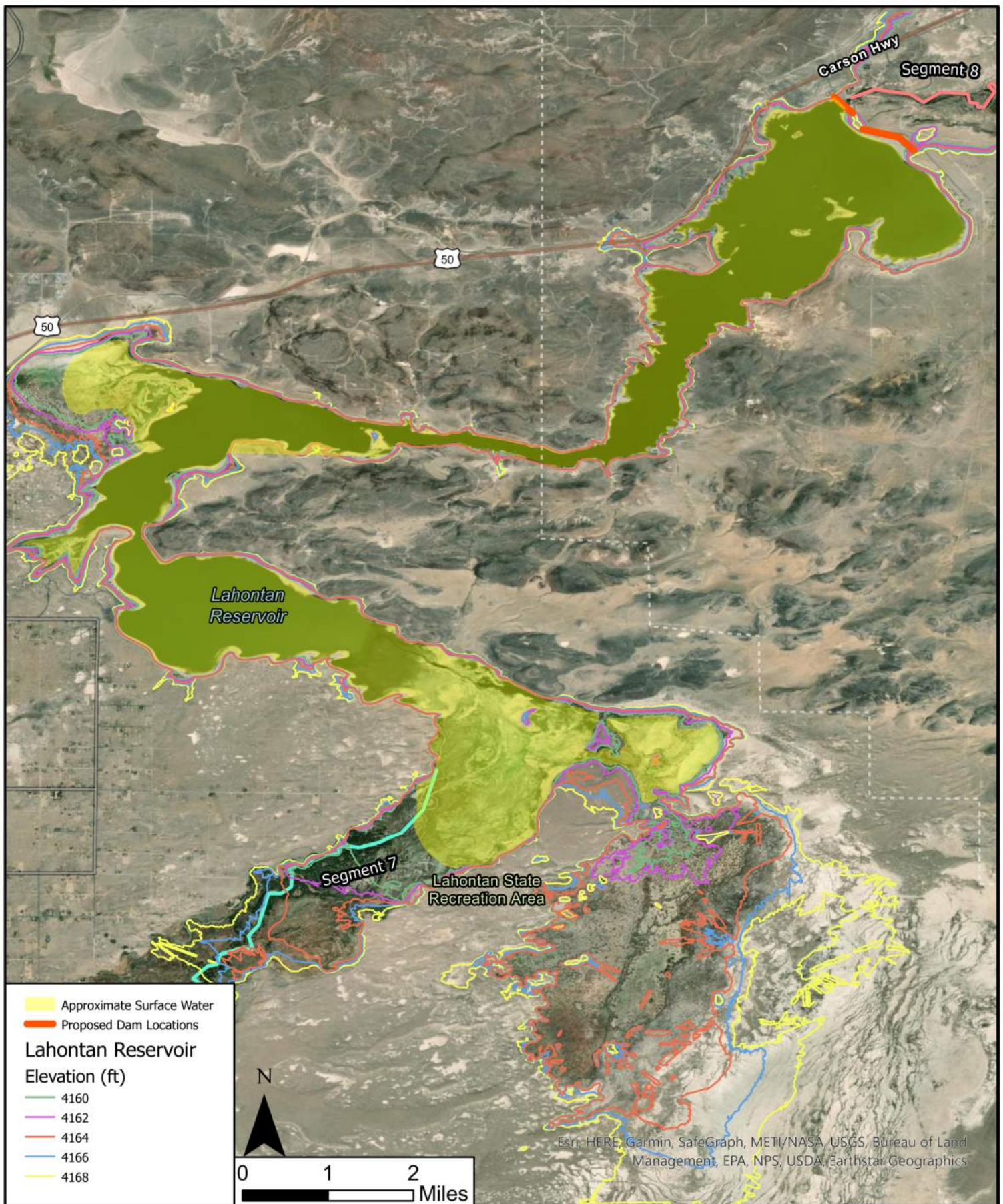


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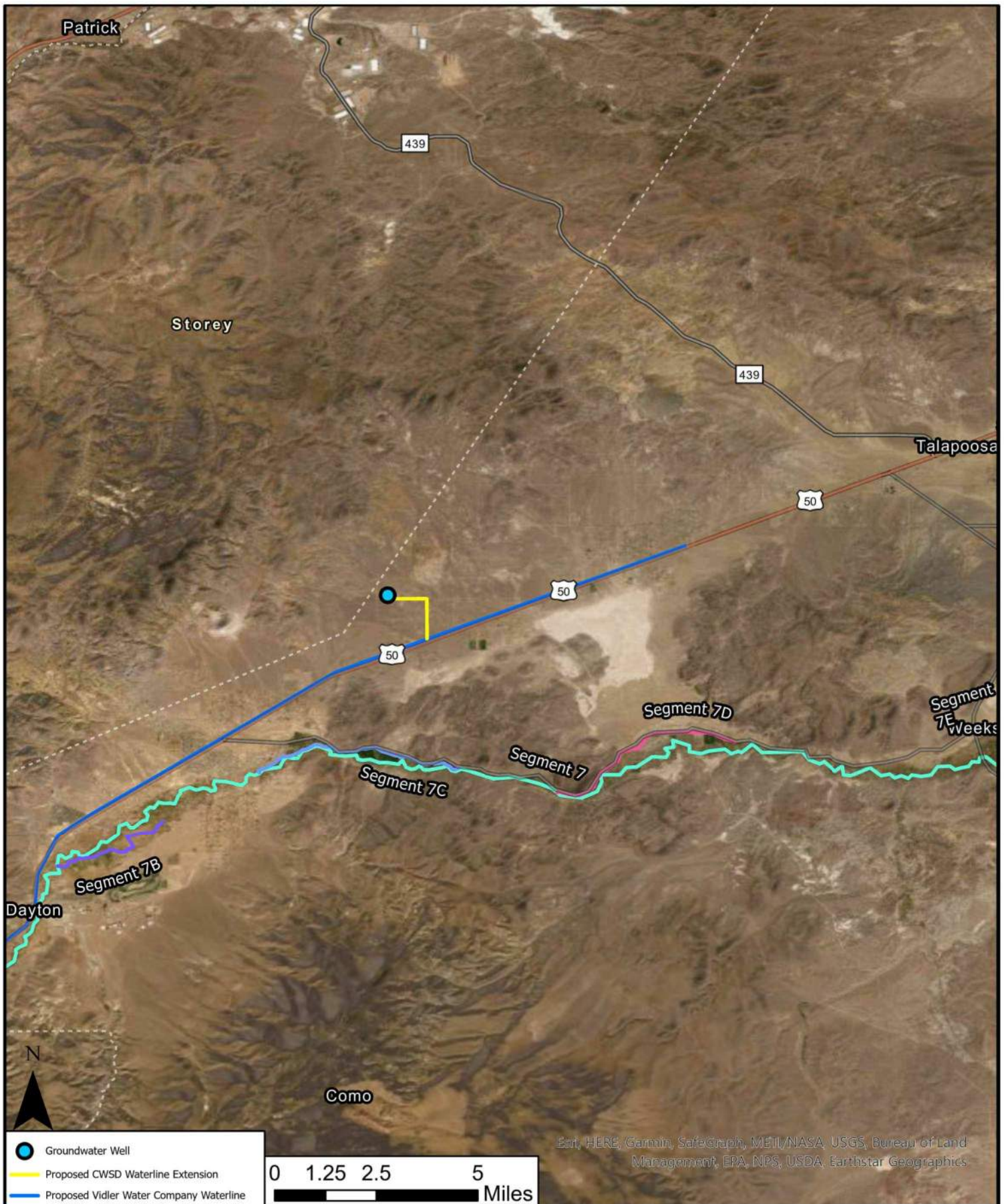
Carson Water Subconservancy District		
Conceptual Alternative 3A Expanding Existing Reservoir Storage		
Gardnerville	Douglas	NV

Date:	2/17/2021
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Job No:	9834.000
Figure:	6.4









Carson Water Subconservancy District

# Conceptual Alternative 4 Regional Piped Water Access near Seneca Road

Stagecoach

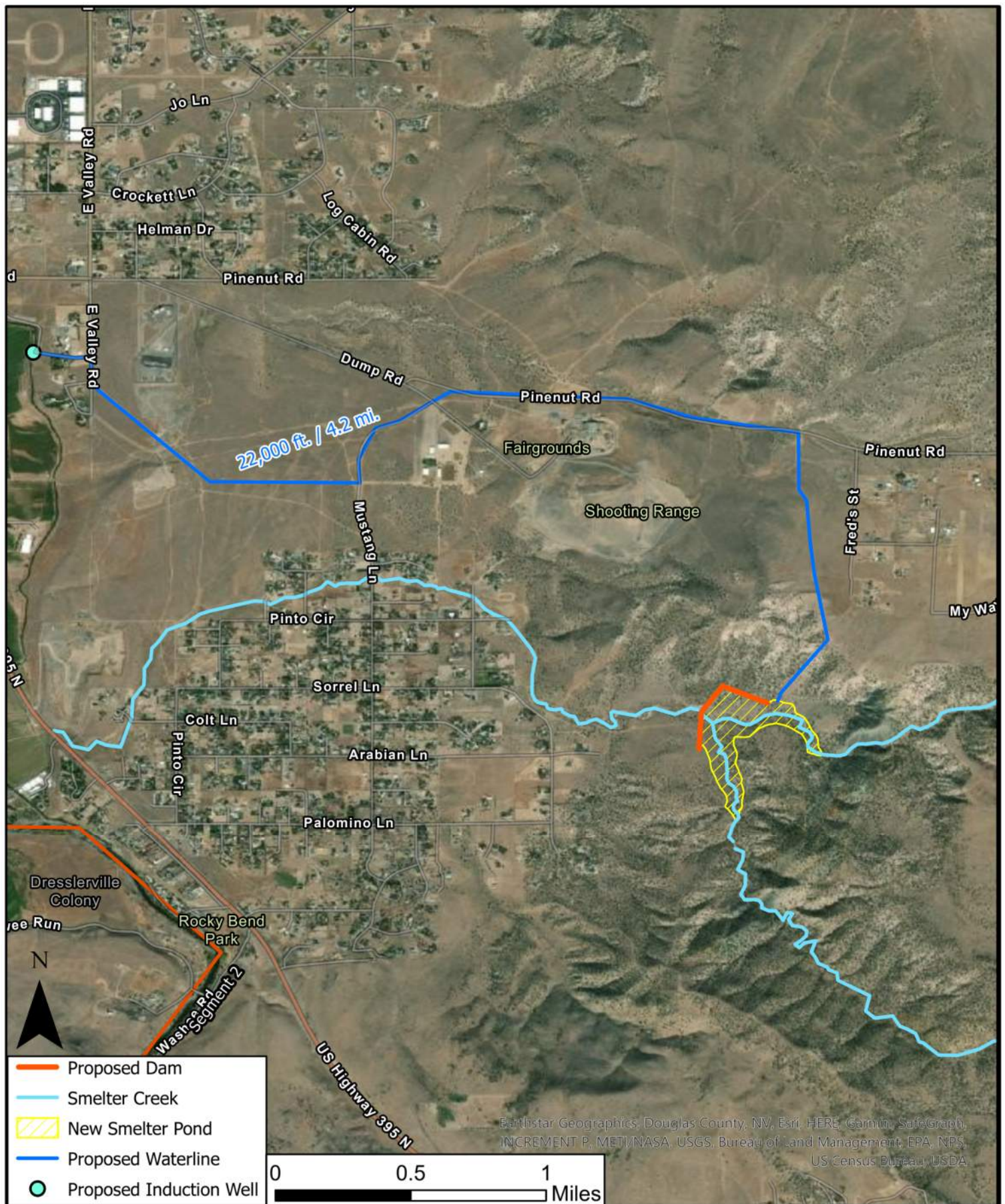
Lyon

NV

Date: 2/17/2021  
Scale: 1 : 200,000  
Job No: 9834.000  
Figure: 6.6

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- Proposed Induction Wells
- Waterline
- New Pond
- Pump House

0 0.5 1  
Miles

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Carson Water Subconservancy District

Conceptual Alternative 6  
New Reservoir Storage

Gardnerville

Douglas

NV

Date: 2/17/2021  
Scale: 1 : 30,000  
Job No: 9834.000  
Figure: 6.8



## 7.0 CONCLUSIONS

Through preparation of this report various data was collected, evaluated, and analyzed that provides insight into historical, current, and future water conditions and trends that the Carson River watershed has or may experience. Data indicates that the Carson River watershed is changing. Instream flows, precipitation, and temperatures are changing and becoming more variable over time. These changes are likely going to result in more water instability in the Carson River watershed. Along with increased water instability, population growth is anticipated, increasing the demand for water, putting more pressure on water resources, including the Carson River.

As a result of increasing climatic variability, water instability, and increasing water demand, existing and new water marketing strategies will become critical to maximize the use of limited water resources. Current water marketing strategies provide some flexibility to use water resources more efficiently. However, implementing new water marketing strategies will likely be required to balance increasingly unstable water supplies with increasing demands. Increasing water rights flexibility (ie. through water banking) and increased water storage will likely be essential tools to find the appropriate balance.

The purpose of this report is to formally document the varied efforts, evaluations, concepts, and outreach to develop a water marketing exchange and transfer strategy for the Carson River watershed. The report presented numerous infrastructure concepts intended to extract, convey, and store water. These concepts were applied through the development of six different conceptual alternatives that could be used to store water for use during periods of increased demand. In addition, water banking, a largely administrative concept, was discussed. These water marketing alternatives were presented as concepts to illustrate the application of infrastructure used for water marketing. Implementation of any of these alternatives or concepts will require additional evaluation, study, permitting, etc. before specific water marketing improvements can advance beyond the planning phase of a project.

Given the imbalance between variable water supplies and increasing demand, Lumos & Associates recommends that additional modeling, study, and evaluations be pursued. Existing water models should be reevaluated and updated for the Carson River watershed so that MAR/ASR and surface water storage alternatives can be evaluated against current conditions. Based on modeling, hydrological/hydrogeological evaluations, and pedestrian surveys, in-field site investigations should be considered to determine the feasibility of improved water marketing infrastructure. Although the presented alternatives will likely not be implemented in the near future, further study and site investigations will help prepare water users for implementation of future infrastructure required to adapt to changing conditions in the Carson River watershed.

Administrative and political solutions should be pursued in parallel with evaluating physical water marketing infrastructure improvements. These administrative and political activities should evaluate the funding, operation, maintenance, and oversight of potential infrastructure improvements. In addition, water banking concepts should be investigated to ensure that the proper legal framework exists to implement and support new water marketing infrastructure.

Water users could implement components of the proposed alternatives in the near future that could be adapted to water marketing concepts in the future. For example, induction wells that are constructed in the near term could potentially be used with a future managed aquifer recharge



project. In addition, regional pipelines could provide more efficient water use. Water users should consider the long-term applications of near term improvements during project planning.

It is important to note that implementation of any significant administrative program and/or infrastructure project will be a significant undertaking. As such, it is important to identify and engage with interested parties and stakeholders. Stakeholder support and buy-in to any proposed changes or improvements will be necessary for the successful implementation of any water marketing strategy.

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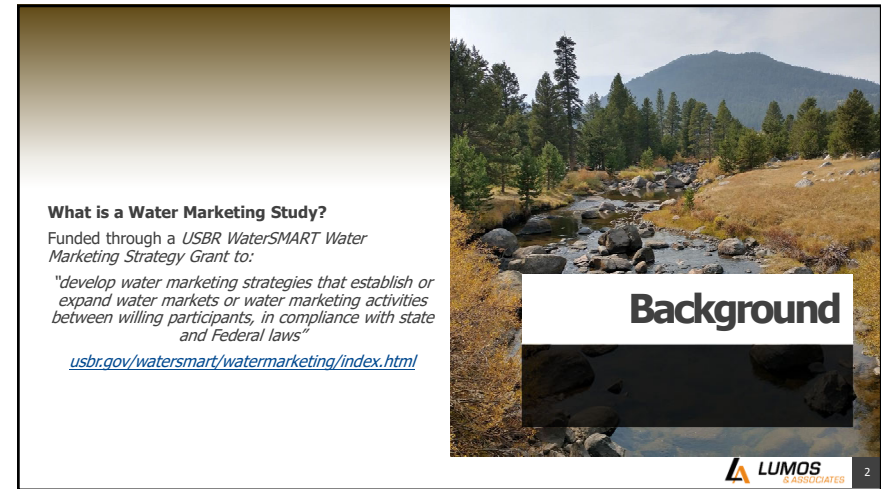
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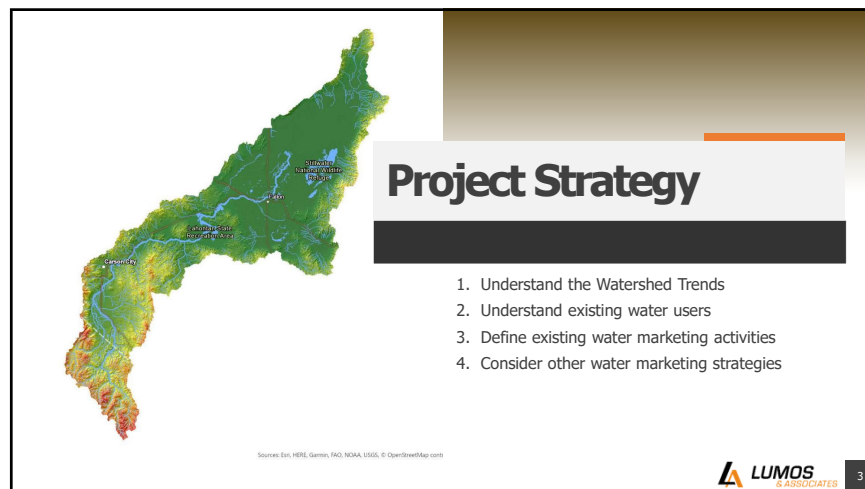




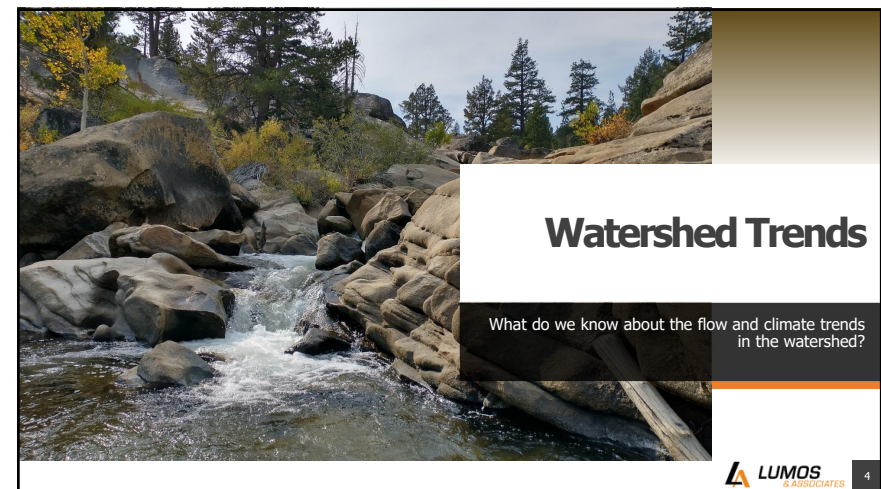
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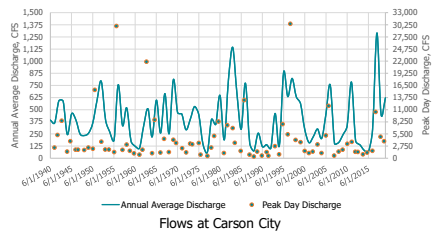
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## Instream Flows - 1940 to 2019

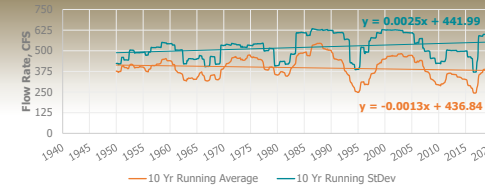
Location	WF at Woodfords	EF near Gardnerville	CR near Carson City	CR near Fort Churchill
USGS Station #	10310000	10309000	10311000	10312000
Annual Average Flow, CFS	103.5	367.5	403.9	380.1
Annual Flow Standard Deviation, CFS	49.8	181.2	255.9	257.8
Average Peak Day Flow, CFS	1,170.6	3,597.7	4,175.0	3,284.7



- Flows are highly variable

5

## Instream Flows – 1940 to 2019

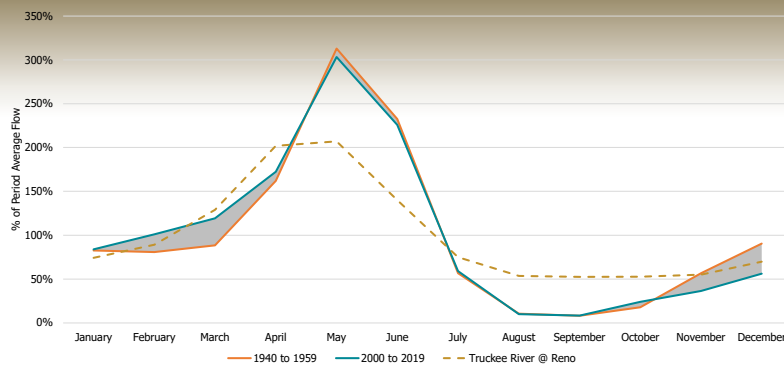


- Flow trends indicate that:
  - Flows are decreasing in each river stretch
  - Flows are becoming more variable

	WF at Woodfords	EF near Gardnerville	CR near Carson City	CR near Fort Churchill
<b>Number of Years Annual Average Flow Exceeded 90<sup>th</sup> Percentile Flow</b>				
90 <sup>th</sup> Percentile Flow (CFS)	167	600	732	710
1940 to 1979	3	3	3	3
1980 to 2019	6	8	8	8
<b>Number of Years Annual Average Flow was Less Than 10<sup>th</sup> Percentile Flow</b>				
10 <sup>th</sup> Percentile Flow (CFS)	40	135	76	50
1940 to 1979	1	1	1	1
1980 to 2019	3	2	2	1

6

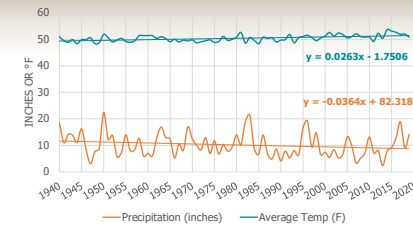
## Impacts to Instream Flows at Carson City



7

## Climatic Conditions at Carson City – 1940 to 2019

- Climatic (not weather) trends in Carson City indicate that:
  - Temperatures are increasing
  - Precipitation is decreasing
- Impacts on instream flows:
  - Correlation between temperature and precipitation with Carson River flows
  - Increasing temperatures + decreasing precipitation = decreasing instream flow



8



## The Challenge


What do conditions look like in the future?

*For water users along the Carson River, these trends are troubling. The result is an amplification of the "feast or famine" condition that already exists for the Carson River with the average flow slowly decreasing and flow patterns slowly changing. If this trend continues, flows will continue to become more extreme, less reliable, and continue to decline. The lack of significant storage in the upper watershed prevents any stabilization or mitigation of these extremes.*

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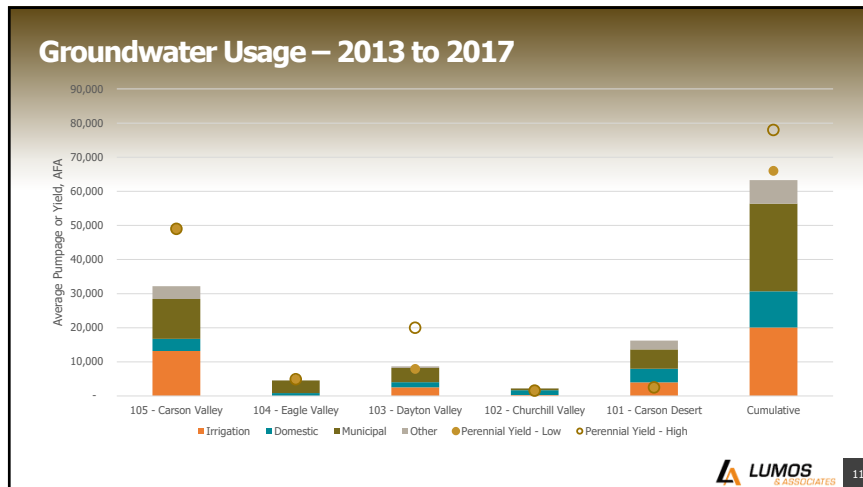
## Watershed Users

What do we know about how water is being used?

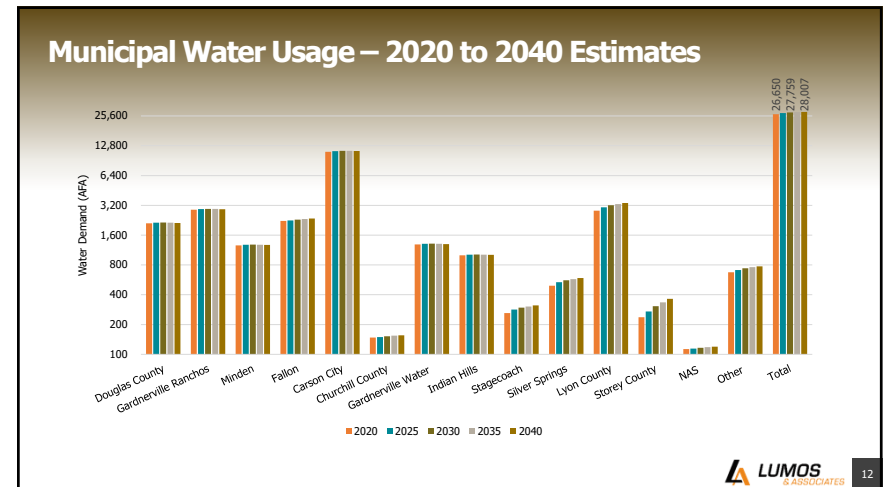
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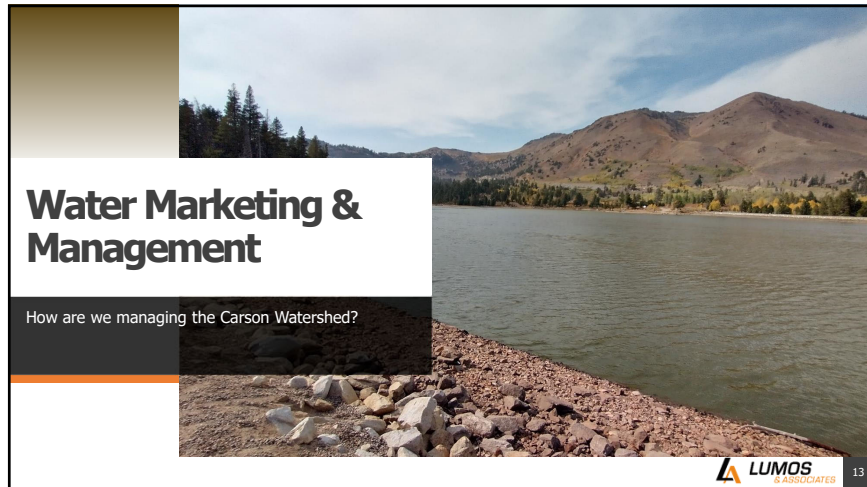


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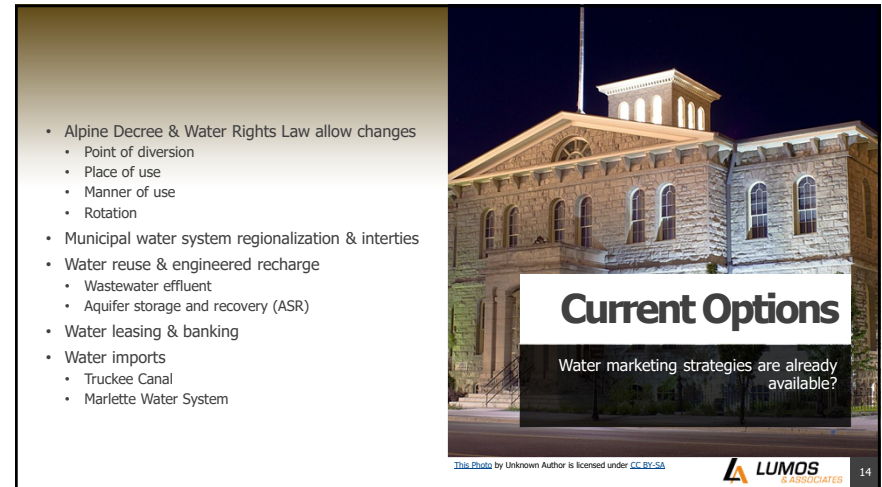


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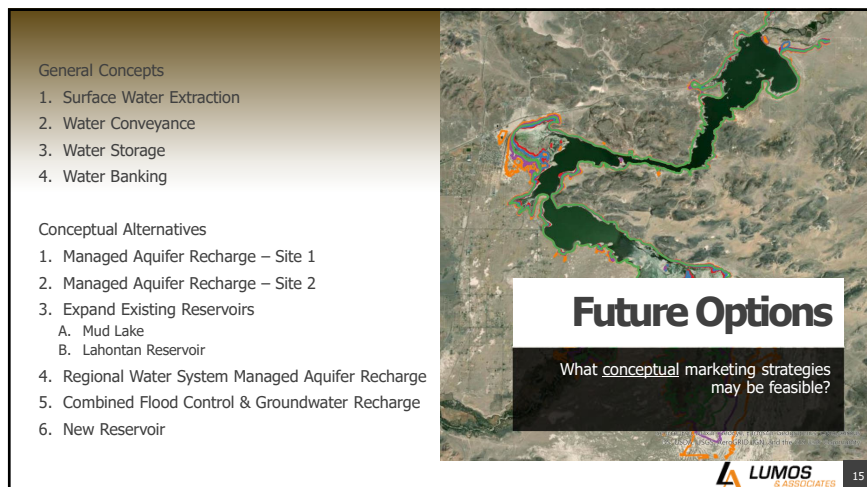




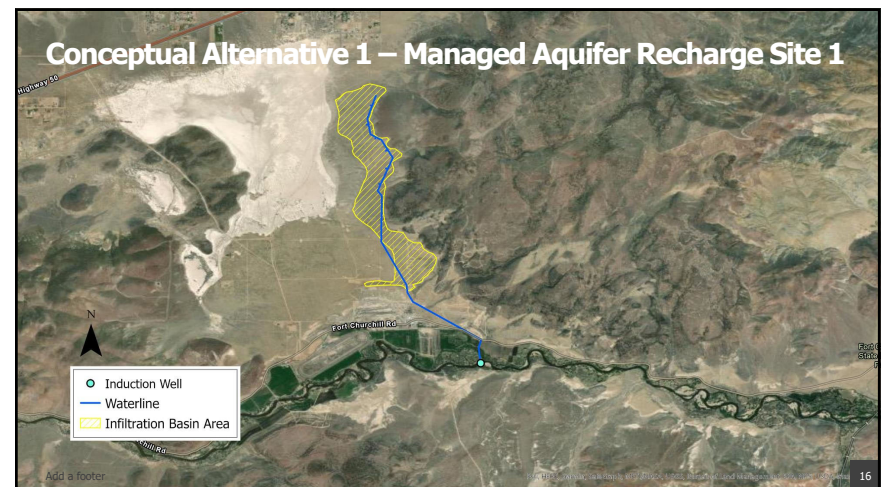
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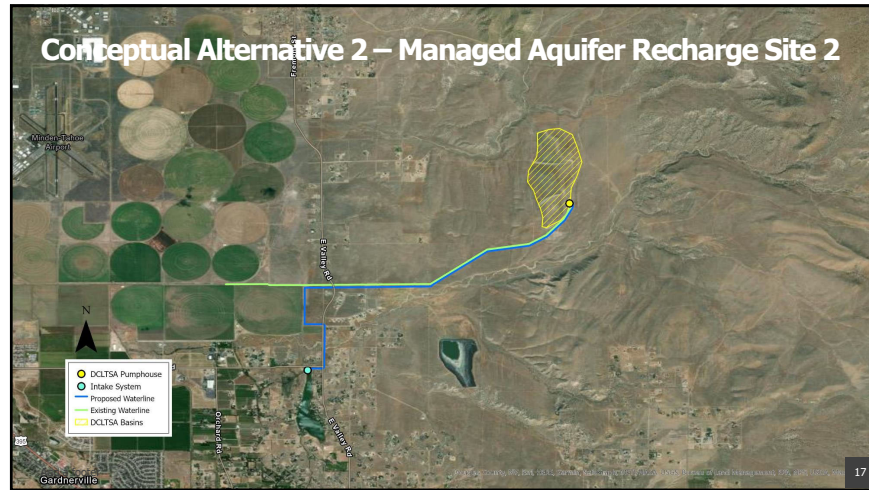


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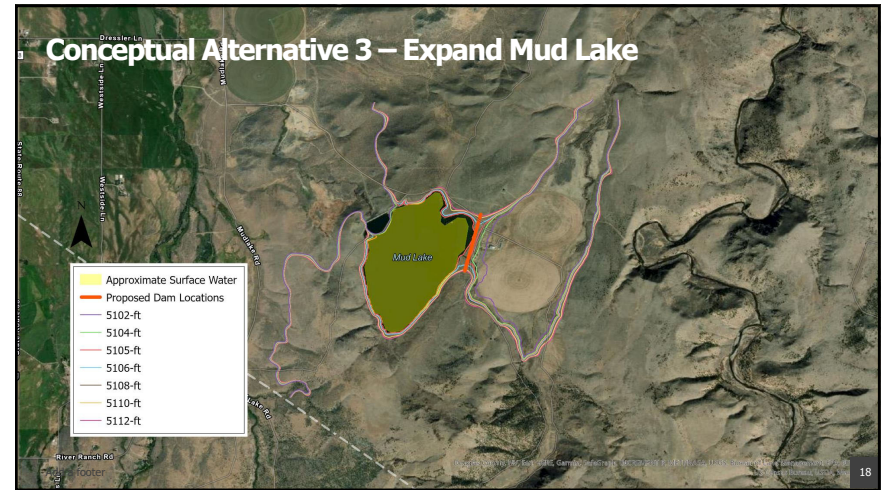


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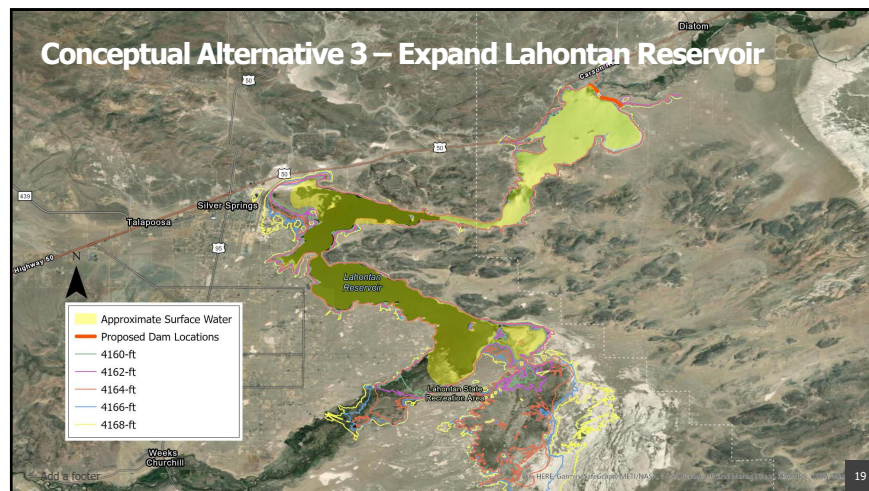




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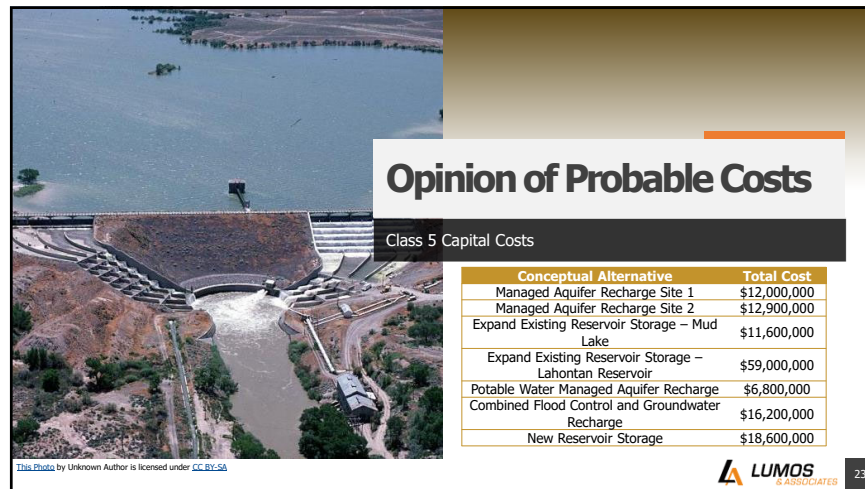




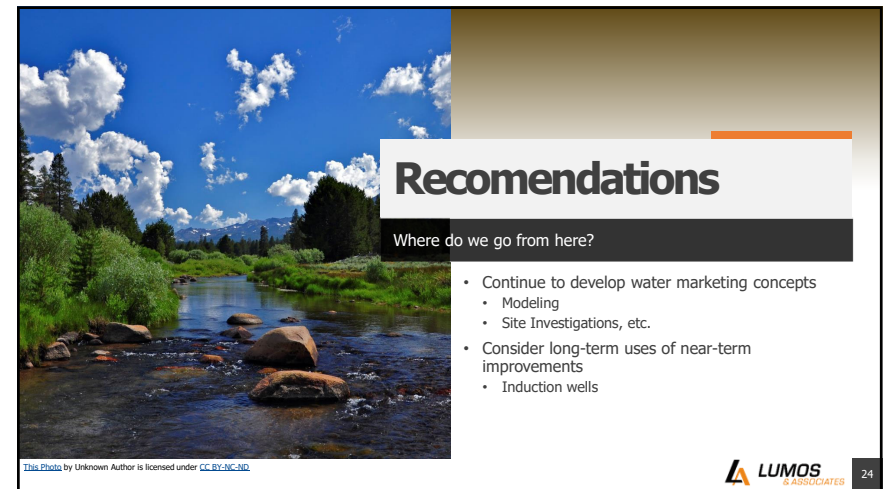
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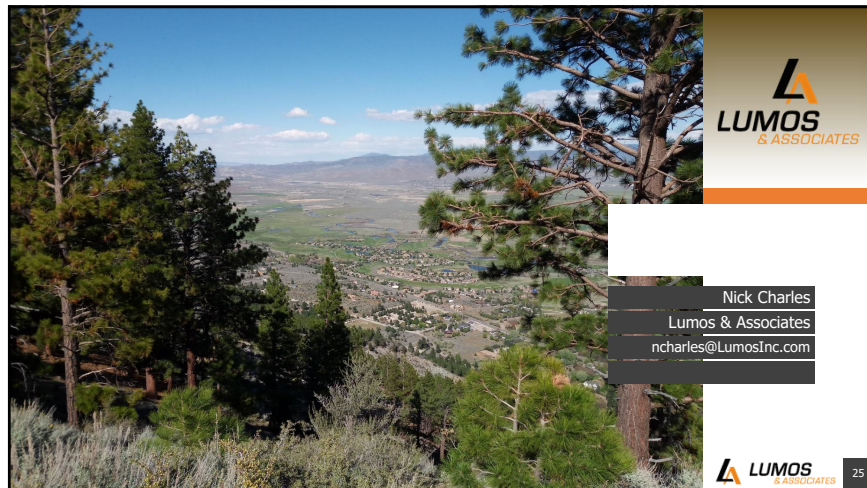
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## **AGENDA ITEM #12**



## CARSON WATER SUBCONSERVANCY DISTRICT

**TO:** BOARD OF DIRECTORS

**FROM:** EDWIN D. JAMES

**DATE:** May 19, 2021

**SUBJECT:** Agenda Item #12 – For Discussion Only: Presentation by River Wranglers on their Activities in the Carson Water Watershed

---

**DISCUSSION:** Darcy Phillips, River Wranglers Executive Director, will give a presentation on their program activities in the Carson River Watershed.

**STAFF RECOMMENDATION:** Receive and file.

## **AGENDA ITEM #13**

## CARSON WATER SUBCONSERVANCY DISTRICT

**TO:** BOARD OF DIRECTORS

**FROM:** EDWIN D. JAMES

**DATE:** May 19, 2021

**SUBJECT:** Agenda Item #13 – For Discussion Only: Carson River Float Trip 4/29/21

---

**DISCUSSION:** Staff will report on the Carson River Float Trip for Watershed community leaders held April 29.

**STAFF RECOMMENDATION:** Receive and file.

## **AGENDA ITEM #14**



## CARSON WATER SUBCONSERVANCY DISTRICT

**TO:** BOARD OF DIRECTORS

**FROM:** EDWIN D. JAMES

**DATE:** May 19, 2021

**SUBJECT:** Agenda Item #14 - For Discussion Only: ***Water Connects Us All*** PSA – Media Coverage

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**DISCUSSION:** Staff will show the board the media coverage received during the launch of the ***Water Connects Us All*** PSA and the viewership statistics related to the TV broadcasts.

Please find the links for the following pieces of earned broadcast and news media:

KTVN's piece with GORGEOUS drone shots: [Earth Day Campaign Highlights Importance of Clean Water - KTVN Channel 2 - Reno Tahoe Sparks News, Weather, Video](#)

KOLO 8's piece: [CWSD releases new PSA highlighting watershed awareness \(kolotv.com\)](#)

Record Courier: <https://www.recordcourier.com/>

Carson Now: <https://www.carsonnow.org/reader-content/04/19/2021/carson-water-subconservancy-district-releases-second-video-empowering-neva>

**STAFF RECOMMENDATION:** Receive and file.

## **AGENDA ITEM #15**

## CARSON WATER SUBCONSERVANCY DISTRICT

**TO:** BOARD OF DIRECTORS

**FROM:** EDWIN D. JAMES

**DATE:** May 19, 2021

**SUBJECT:** Agenda Item #15 – For Possible Action: Approval of the General Fund, Acquisition/Construction Fund, and Floodplain Management Fund  
FY 2021-22 Final Budgets

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**DISCUSSION:** Attached is the proposed final FY 21-22 budgets for the General Fund, Acquisition/Construction Fund, and Floodplain Management Fund. There are a few changes from the Tentative Budgets to the Final Budgets. Some of the grant expenditures and income have changed. All the non-grant changes are shown in red. Based on these changes, CWSD had an additional \$40,000. On May 5, 2021, the Finance Committee met to discuss where the funding should be allocated (see attached meeting notes). Based on the discussion by the Finance Committee it was recommended that \$10,000 would be given to River Wranglers to enhance the schools outreach program (see attached proposal) and \$30,000 would be transferred to the Acquisition/Construction Fund.

**FINANCE COMMITTEE AND STAFF RECOMMENDATION:** Approved the budgets as submitted.

# CARSON WATER SUBCONSERVANCY DISTRICT FINANCE COMMITTEE

*DRAFT Meeting Minutes*  
May 5, 2021, 10am

**Committee Members Present:**

David Griffith, Alpine County  
Jack Jacobs, Douglas County  
Ernie Schank, Churchill County  
Lisa Schuette, Carson City  
Mike Workman, Lyon County

**Staff Present:**

Edwin James, General Manager  
Catrina Schambra, Secretary to the Board

**Others Present:**

Patrick King, CWSD Legal Counsel  
Darcy Phillips, River Wranglers

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This meeting of the CWSD Finance Committee was held via Zoom and was called to order at 10am by Committee Member Schank. Roll call was taken and a quorum of the Finance Committee members were present.

**Item #3 - Public comment:** None

**Item #4 - For Possible Action: Approve Finance Committee Meeting Minutes of Mar. 1, 2021**

*Director Jacobs made a motion to approve the minutes of the Finance Committee meeting of March 1, 2021. The motion was seconded by Committee Member Griffith and approved unanimously.*

**Item #5 - For Possible Action: Review funding additional projects for FY 2021-22**

Mr. James explained that an additional \$40,000 is available in the FY 21-22 Budget that can go to funding additional projects. Based on comments he received by Board members he suggested the following allocations:

- \$25,000 to Acquisition/Construction Fund (for BOR grant match)
- \$10,000 to River Wranglers for increased educational programs
- \$5,000 towards Ash Canyon Trail maintenance project

Director Schank comments that he thinks the RW project is a great idea. He has spoken to his wife about it, who is a retired teacher, and she agrees.

Committee Member Griffith opposes considering granting more funding without putting it out to all who requested funds originally. He fully supports River Wranglers and their educational projects – and does not oppose the project per se but thinks it is unfair to other groups to not allow them to request these funds.

Mr. James agrees that Committee Member Griffith is right that this is unusual, but the issue is the time restraint. Any leftover funds usually get rolled over into preliminary planning for next year or capital projects. We have never done this before, and this is only being brought forward because of the requests from Board members at the April Board meeting. Because CWSD must finalize the FY 2021-22 Budget at the May Board meeting, Mr. James is looking for direction from the committee.



There is discussion regarding the proposal from River Wranglers (RW) led by Director Jacobs. He asked if the proposal by RW will be simply a study or will there be action in this project. Darcy Phillips (RW Executive Director) stated that developing the curriculum is straight forward. What will take most of the time is coordinating this with teachers and schools. Ernie suggests that the curriculum gained from the Watershed Wednesdays Forum could be used and with one teacher at each school as a contact, it should not cost very much or take very long to get started quickly. He is very excited about this idea and thinks it could develop into a nationwide educational model! Director Jacobs supports the idea. He says the focus is on the children, but it will have a community impact. Director Schank believes this is a natural progression on the Watershed Wednesdays outreach. This is just building on that idea.

Director Workman has a few reservations and suggests we call it a Pilot Program for the first year. He fully supports River Wranglers programs in general and thinks this project has great potential. Director Schank agrees the Pilot Program designation is a good idea. Director Schuette 100% supports the RW project. An educational component is a key to the future of the watershed, and she thinks this will be an exceptional program! As a former teacher she sees the target age group is 6<sup>th</sup> & 7<sup>th</sup> Grade students but sees value in a short unit geared to 2<sup>nd</sup> Graders as an opportunity to plant the proper seed of watershed education.

Mr. James reminded the committee that there is \$40,000 available to allocate. He confessed his bias is to grow the capital funds and his suggestions are based on that. Director Schuette had asked about the possibility of funding trails projects since none were approved so far. Director Schank had requested the possibility of further educational outreach funding resulting from Watershed Wednesdays and growing on that success.

Director Schank asked how he had arrived at the Ash Canyon Trail Project out of the 3 that were presented. Mr. James explained that it was the only project that included water quality in proposal. There was discussion on how trail projects align with our mission. Should that be our focus? Director Workman wonders why these types of projects are not more suited for city funding and their responsibility. Committee Member Griffith states trails do not really affect water quality and CWSD should stick to their wheelhouse for funding projects. Director Jacobs agrees, we should discuss what best affects our mission in all trail's requests. Mr. James says that informational signs and the Aquatic Trail are grant funded projects. We can be promoting these types of projects by finding grants to fund them.

Director Schuette appreciates the candor of this committee and agrees our Mission Statement needs to be our guide in our projects. She believes signage ties into our educational outreach. Mr. James states the purpose of the CRC (Caron River Coalition) is to coordinate with other groups. A lot of our watershed projects come from the CRC and we look for grant funding to do these projects (i.e. the Aquatic Trail project).

*Director Jacobs made a motion to adjust the FY 21-22 Final Budget to add \$10,000 funding for the River Wranglers "School/Student Interconnectedness in the Carson River Watershed" Project and \$30,000 going to the Acquisition/Construction Fund. This will be the single recommended adjustment to the FY 21-22 Budget as presented in Item #6. The motion was seconded by Director Workman and approved 4/1/0 with Committee Member Griffith opposed.*

**Item #6 - For Possible Action: Approval of the General Fund, Acquisition/Construction Fund, and Floodplain Management Fund FY 2021-22 *DRAFT* Final Budgets**

Director Schank asked Mr. James if there were any other considerations to be reviewed in the Final FY 21-22 Budget to be recommended to the Board for approval at the May 19, 2021 meeting. Mr. James explained that the changes approved in Item 5 will be the only changes recommended to the Board for approval. He noted that FEMA MAS 12 funds have not been included as they have not been awarded yet. The funds will be added to the budget when received. FEMA MAS grant expenses are 100% covered by the grant so it does not affect our net budget.

*No action taken.*

**Item #6 - Public comment:** None

The meeting adjourned at 10:36am.

Respectfully submitted,

*Catrina Schambra*

Secretary to the Board

**CARSON WATER SUBCONSERVANCY DISTRICT  
FY 2021-22 REQUEST FOR FUNDING APPLICATION**

**APPLICANT:** River Wranglers – Darcy Phillips  
Name  
POB 1612  
Address  
Dayton Lyon NV 89403  
City County State Zip Code  
rw@riverwranglers.org 775.386.2743  
Email Telephone #

**PROJECT NAME:** School/student interconnectedness in the Carson River Watershed

**PROJECT LOCATION/ADDRESS:** Multiple locations in the Carson River Watershed

**PROJECT DESCRIPTION:** Briefly describe the project. Provide maps, drawings, photographs or other information. Additional sheets may be attached.

River Wranglers proposes an interconnected group of students throughout the Carson River watershed. This would be an exploratory process through which we would meet with watershed teachers, recruit involvement, and figure out the virtual method and timing for an ongoing, regular “meet” between students from different areas of the watershed. The issues that need to be sorted out include:

- What age group/standards would fit this project best?
- What virtual platform works best for this and is the most secure across multiple districts?
- What format works – partially live with pre-recorded educational videos?
- Teachers being at different parts of their curriculum at different times of the year – how to solve this?
- Should this be done as STEM night (more voluntary) events or as part of classroom curriculum? Is classroom curriculum even possible given differences in districts?
- What program goals beyond simply connecting kids within the watershed?
  - Non-point source pollution
  - Flooding
  - Watershed awareness – geographic, downstream/upstream, different land uses
  - What can kids do to help?

Our plan is to recruit/hire a teacher (part-time) at \$23 per hour (independent contractor) to assist us in the networking and curriculum issues presented.

**TOTAL ESTIMATED PROJECT COST:** \$10,000 – for salary use. \$23 for p/t teacher, and \$42.83 (reimbursable rate) for Executive Director.

**AMOUNT REQUESTED FROM CWSD:** \$10,000

**ESTIMATED DATE PROJECT TO BEGIN:** July 1, 2021

**ESTIMATED TIME TO COMPLETE PROJECT:** June 30, 2022

**Signature:** Darcy Phillips

**Name (please print):** Darcy Phillips

**Title:** Executive Director

**Date:** 4/30/2021

# CARSON WATER SUBCONSERVANCY DISTRICT

## General Fund

	Proposed Final Budget	Approved Final Budget	Projected Actual Budget	Notes
	Jul '21 - Jun '22	Jul '20 - Jun '21	Jul '20 - Jun '21	
<b>Income</b>				
5008-00 . Alpine County	10,897.74	10,897.74	10,897.74	
5009-00 . Churchill County Ad Valorem	224,981.67	218,984.88	218,984.88	
5010-00 . Lyon County Ad Valorem	200,242.41	187,253.01	187,253.01	
5011-00 . Douglas County Ad Valorem	650,989.68	617,790.62	617,790.62	
5012-00 . Carson City Ad Valorem	477,771.17	458,361.52	458,361.52	
5022-00 . Mud Lake Water Lease	55,500.00	51,765.00	52,000.00	
5023-00 . Lost Lake Water Lease	0.00	0.00	804.00	
5031-00 . Interest Income - St Pool Reg	2,025.41	4,821.36	3,305.00	0..35 Percent
5050-13 . Watershed Coord Grant IV 19-22	86,925.00	164,800.00	112,898.00	Grant
5050-13 . NDEP Watershed Drone Work	0.00	18,165.00	17,903.47	Grant
5050-07 .CRC Donation	0.00	0.00	0.00	
Aquatic Trail Grant	85,000.00	0.00	5,000.00	Grant
5058-04 .208 Water Quality LID	0.00	3,900.00	10,013.00	Grant
5060-00 . Misc. Income / Watershed Tour	6,000.00	6,000.00	20.00	
5082-00 . CASGEM	400.00	400.00	400.00	Grant
5083-00 . Alpine Co Mesa GW Study	300.00	0.00	300.00	Grant
6003-00 . FEMA - MAS # 9	0.00	81,420.00	58,530.00	Grant
6004-00 . USBR - water Market Study	0.00	53,078.00	50,000.00	Grant
6005-00 . FEMA - MAS # 10	85,486.00	319,590.00	324,127.00	Grant
6006-00 . FEMA - MAS # 11	417,395.00	0.00	158,869.00	Grant
FEMA MAS 12	0.00	0.00	0.00	
<b>Total Income</b>	<b>2,303,914.08</b>	<b>2,197,227.13</b>	<b>2,287,457.24</b>	
<b>Expense</b>				
<b>ADMINISTRATIVE EXPENSES:</b>				Notes
7015-00 . Salaries & Wages	422,280.00	413,300.00	390,000.00	reduced \$8K
7020-00 . Employee Benefits	179,170.00	172,217.00	150,000.00	reduced \$8K
7021-00 . Workers Comp Ins.	2,300.00	2,300.00	2,300.00	
7101-00 . Director's Fees	16,000.00	16,000.00	13,000.00	reduced \$2.3K
7102-00 . Insurance	5,100.00	5,100.00	4,935.00	
7103-00 . Office Supplies	2,000.00	2,100.00	1,560.00	
7104-00 . Postage	1,250.00	1,050.00	1,200.00	
7105-00 . Rent	38,885.00	37,752.00	37,752.00	
7106-00 . Telephone	6,400.00	5,000.00	6,200.00	increased \$0.5K
7107-00 . Travel-transport/meals/lodging	16,000.00	16,000.00	5,100.00	Increased \$0.5K
7108-00 . Dues & Publications	1,400.00	1,100.00	1,400.00	increased \$0.3K
7109-00 . Miscellaneous Expense	1,000.00	1,000.00	1,000.00	
7110-00 . Seminars & Education	1,500.00	1,500.00	1,000.00	reduced \$0.5K
7111-00 . Office Equipment	3,000.00	3,000.00	3,000.00	
7112-00 . Bank Charges	50.00	50.00	50.00	
7115-00 . Accounting	16,800.00	16,800.00	16,800.00	
7116-00 . Legal	32,000.00	32,000.00	24,000.00	
<b>Subtotal-Administrative Expenses</b>	<b>745,135.00</b>	<b>726,269.00</b>	<b>659,297.00</b>	



# CARSON WATER SUBCONSERVANCY DISTRICT

## General Fund

### Multi Year, Studies, and Grants

	Proposed Final Budget	Revised Final Budget	Projected Actual Budget	
PROJECTS:	Jul '21 - Jun '22	Jul '20 - Jun '21	Jul '20 - Jun '21	Notes
7114-00 · Professional Outside Services	30,000.00	30,000.00	30,000.00	
7117-00 · Lost Lakes Expenses	14,000.00	13,500.00	10,500.00	
7118-00 · Mud Lake O & M	1,250.00	1,200.00	1,200.00	
7120-00 · Integrated Watershed Plan				
7120-07 · Watershed Tour	6,000.00	6,000.00	1,000.00	
7120-33 Watershed Coord Grant IV 19-21	28,800.00	49,200.00	21,347.00	Grant
7120-33 Watershed Coord Match IV 19-21	16,608.00	9,900.00	17,521.00	Grant
7126-00 · NDEP CR UAS Monitoring Drone	0.00	305.00	315.89	Grant
7404-00 · Noxious Weeds Control	75,000.00	75,000.00	75,000.00	
7406-00 · 208 Planning - LID	0.00	1,210.00	7,688.00	Grant
7433-10 · State Park Aquatic Trail	80,000.00	0.00	4,500.00	Grant
7437-00 · FEMA MAS #9	0.00	66,824.00	34,470.00	Grant
7437-00 · FEMA MAS #10	68,905.00	297,642.00	306,025.00	Grant
7437-00 · FEMA MAS #11	384,995.00	0.00	138,109.00	Grant
7438-01 · USBR WaterSmart Reimbursed	0.00	53,078.00	50,000.00	Grant
7438-02 · USBR WaterSmart Match	0.00	0.00	0.00	AcquConst Fund
7500-00 · USGS Stream Gage Contracts	77,022.00	78,405.00	78,405.00	
7508-03 · USGS Do. Co. & Lyon Co GW Collection	16,800.00	16,890.00	16,890.00	
7524-01 · USGS GW level & WQ Churchill Co.	5,930.00	5,680.00	5,860.00	
7526-01 · USGS Middle Carson Groundwater	\$ 15,250.0	\$ 15,250.0	\$ 15,250.0	
7610-10 · Douglas Co Regional Pipeline	125,000.00	125,000.00	125,000.00	
7620-11 · Regional Pipeline Payment to CC	125,000.00	125,000.00	125,000.00	
<b>Subtotal Multi Year &amp; On-going Projects</b>	<b>1,070,560.00</b>	<b>970,084.00</b>	<b>1,064,080.89</b>	

### Counties and River Projects

				Notes
7215-00 · Sierra NV Journeys - Family Night	3,279.00	3,279.00	3,279.00	
7332-00 · Carson River Work Days	36,000.00	26,000.00	26,000.00	increased \$10K
7337-00 · Carson River Restoration				
7337-20 · CVCD Genoa Bank Stabilize	0.00	70,000.00	70,000.00	
7337-25 · CVCD Bioengineering 2020-21	0.00	65,000.00	65,000.00	
7337-26 · CVCD Westwood Channel 2020-21	0.00	100,000.00	100,000.00	
7337-34 · DVCD Bank Stab & Dayton Bridge	0.00	40,000.00	40,000.00	
7337-36 · DVCD Fort Churchill	0.00	75,000.00	75,000.00	
7337-04 · LCD Clearing & Sand Bar Removal	0.00	20,000.00	20,000.00	
7600-05 · Alpine Co. Watershed Group.	25,000.00	25,000.00	25,000.00	
7600-09 · CASGEM	5.00	5.00	2.00	
7600-10 · Mesa GW Measurement Project	2.00	0.00	1.00	
7640-09 · Lahontan Valley WTR Level (3 year)	14,500.00	20,000.00	20,000.00	
7640-17 TCID Carson Diversion Dam 19-20 EXT	0.00	0.00	22,073.00	
7640-18 · Dixie Valley WTR Lvl measurement	23,000.00	21,000.00	21,000.00	
7640-19 TCID Carson Diversion Dam Gate	0.00	15,000.00	15,000.00	
<b>Subtotal Carson River Projects</b>	<b>101,786.00</b>	<b>480,284.00</b>	<b>502,355.00</b>	

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## CARSON WATER SUBCONSERVANCY DISTRICT General Fund

### New Projects

	Proposed to the			Notes
	Fin Committee	Requested		
Historic V & T Trail	\$ -	\$ 5,000		
Lower Ash Canyon Trail	\$ -	\$ 11,469		
Riverview Park Connector Trail	\$ -	\$ 10,000		
CVCD Bio and Debris Removal	\$ 75,000	\$ 75,000		
CVCD West Fork Bank Stabilization	\$ 100,000	\$ 100,000		
DVCD	\$ 100,000	\$ 100,000		
Lahontan Conservation District	\$ 25,000	\$ 25,000		
AWG Markleeville Creek Restoration	\$ -	\$ 27,911		
Alpine Fish and Game	\$ -	\$ 50,000		
Gardnerville Station Outlet Piping	\$ -	\$ 70,000		
TCID Diversion Dam	\$ 50,000	\$ 50,000		
Carson River Basin Study	\$ -	\$ 25,000		
<b>Total Expenses for New Projects</b>	<b>350,000.00</b>	<b>0.00</b>	<b>0.00</b>	
<b>Total Expenditures</b>	<b>2,267,481.00</b>	<b>2,176,637.00</b>	<b>2,225,732.89</b>	
<b>Net Ordinary Income</b>	<b>36,433.08</b>	<b>20,590.13</b>	<b>61,724.35</b>	
<b>Other Income/ Other Income</b>				
Beginning Equity	578,688.35	680,768.00	661,964.00	*
Transfer from Acqu./Const. Fd to Gen Fd.	0.00	0.00	0.00	
	<b>578,688.35</b>	<b>680,768.00</b>	<b>661,964.00</b>	
<b>Total Other Inc Other Expenses</b>				
8008-00 - Preliminary Planning	400,000.00	385,000.00	0.00	
Transfer from Gen. Fd. to Floodplain Fd.	0.00	0.00	0.00	
Transfer from Gen. Fd. to Acqu./Const. Fd.	105,000.00	145,000.00	145,000.00	increase \$30K
<b>Total Other Expenses</b>	<b>505,000.00</b>	<b>530,000.00</b>	<b>145,000.00</b>	
<b>Net Other Income</b>	<b>73,688.35</b>	<b>150,768.00</b>	<b>516,964.00</b>	
<b>ENDING BALANCE</b>	<b>110,121.43</b>	<b>171,358.13</b>	<b>578,688.35</b>	

\* Based on the 2019-20 Audit

**CARSON WATER SUBCONSERVANCY DISTRICT  
FLOODPLAIN MANAGEMENT FUND  
FY 2021-22 Final Budget**

FLOODPLAIN MANAGEMENT FUND	Proposed	Adopted	Projected	Notes
	Final	Final	Actual	
	Budget	Budget	Budget	
	Jul '21- Jun '22	Jul '20 - Jun '21	Jul '20 - Jun '21	
<b>Ordinary Income/Expense</b>				
<b>Income</b>				
5032-01 · Interest Inc - Inv. Pool	1,164.19	3,025.06	2,500.00	Based on 0.35%
<b>Total Income</b>	1,164.19	3,025.06	2,500.00	
<b>Expense</b>				
7203-03 Floodplain Planning	300,000.00	300,000.00	0.00	
TCID Flood Project	0.00	35,000.00	35,000.00	
7206-03 Flood Project along SR 88 in Minden	0.00	40,000.00	40,000.00	
<b>Total Expense</b>	300,000.00	375,000.00	75,000.00	
<b>Net Ordinary Income</b>	-298,835.81	-371,974.94	-72,500.00	
<b>Other Income/Expense</b>				
<b>Other Income</b>				
8000-01 · Beginning Equity	332,627.00	382,074.00	405,127.00 *	
8001-01 · Transfer In-General Fund	0.00	0.00	0.00	
<b>Total Other Income</b>	332,627.00	382,074.00	405,127.00	
<b>Ending Equity</b>	33,791.19	10,099.06	332,627.00	

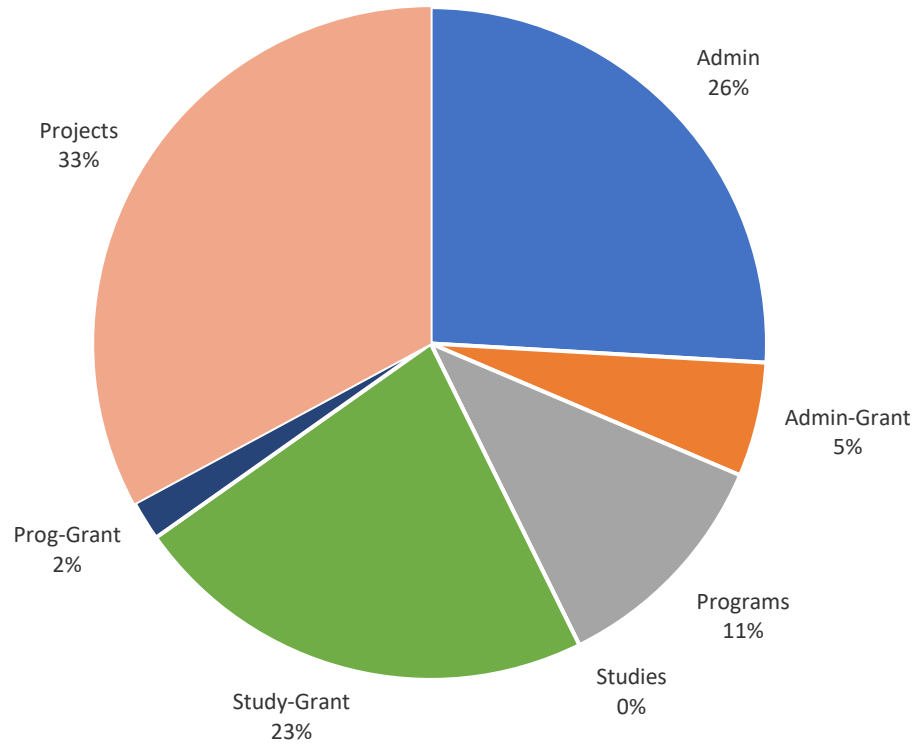
\* Based on the 2019-20 Audit

**CARSON WATER SUBCONSERVANCY DISTRICT  
ACQUISITION/CONSTRUCTION FUND  
2021-22 Final Budget**

ACQUISITION/CONSTRUCTION FUND	Proposed Final Budget	Approved Final Budget	Projected Actual Budget	
	Jul '21 - Jun '22	Jul '20 - Jun '21	Jul '20 - Jun '21	
<b>Ordinary Income/Expense</b>				
Income				
5032-01 · Interest Inc - Inv. Pool	2,790.67	5,723.24	4,850.00	
<b>Total Income</b>	<b>2,790.67</b>	<b>5,723.24</b>	<b>4,850.00</b>	
Expense				
Upstream Storage Evaluation	0.00	33,648.00	34,000.00	
Right-A-Way Lyon County Utility to Silver Springs	25,000.00	125,000.00	100,000.00	
Proposed USBR Regional Watershed Management Plan	25,000.00	0.00	0.00	Increase \$25K
Construction Projects	800,000.00	715,000.00	0.00	
<b>Total Expense</b>	<b>850,000.00</b>	<b>873,648.00</b>	<b>134,000.00</b>	
<b>Net Ordinary Income</b>	<b>-847,209.33</b>	<b>-867,924.76</b>	<b>-129,150.00</b>	
<b>Other Income/Expense</b>				
Other Income				
8000-01 · Beginning Equity	797,333.00	764,253.00	781,483.00	*
8001-01 · Transfer In-General Fund	105,000.00	145,000.00	145,000.00	Increase \$30K
<b>Total Other Income</b>	<b>902,333.00</b>	<b>909,253.00</b>	<b>926,483.00</b>	
* Based on 2019-20 Audit				
<b>Ending Equity</b>	<b>55,123.67</b>	<b>41,328.24</b>	<b>797,333.00</b>	



## General Fund FY 2021-22



## **AGENDA ITEM #16**

## CARSON WATER SUBCONSERVANCY DISTRICT

**TO:** BOARD OF DIRECTORS

**FROM:** EDWIN D. JAMES

**DATE:** May 19, 2021

**SUBJECT:** Agenda Item #16 – For Possible Action: Work with Water Purveyors and Communities on Water Awareness and Conservation Program

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**DISCUSSION:** At the April Board Meeting, Director Engels expressed his concern on the lack of water in the river this year's drought and asked if CWSD could do a PR program to make people aware of the drought. Staff will review some possible programs we can do this coming year. 0--

**STAFF RECOMMENDATION:** Provide direction.

## **AGENDA ITEM #17**



## CARSON WATER SUBCONSERVANCY DISTRICT

**TO:** BOARD OF DIRECTORS

**FROM:** EDWIN D. JAMES

**DATE:** May 19, 2021

**SUBJECT:** Agenda Item #17 – For Possible Action: Update on the 2021  
Legislation Session

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**DISCUSSION:** Staff will give update of the 2021 Legislation Session.

**STAFF RECOMMENDATION:** Receive and file.

## **AGENDA ITEM #18**

## CARSON WATER SUBCONSERVANCY DISTRICT

**TO:** BOARD OF DIRECTORS

**FROM:** EDWIN D. JAMES

**DATE:** May 19, 2021

**SUBJECT:** Agenda Item #18 – For Discussion Only: Update on 2021 Water Year

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**DISCUSSION:** Staff will give an overview of the water picture for the Carson River Watershed.

**STAFF RECOMMENDATION:** Receive and file.

## **STAFF REPORTS**



## CARSON WATER SUBCONSERVANCY DISTRICT

**TO:** BOARD OF DIRECTORS

**FROM:** EDWIN D. JAMES

**DATE:** MAY 19, 2021

**SUBJECT:** Agenda Item #19 - For Information Only: Staff Report

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**DISCUSSION:** The following is a list of meetings/activities (mostly virtual) attended by Ed James and staff since the last Board meeting on April 21, 2021:

- 4/22/21 - Ed and Catrina met with Heather Thach from FEMA re: procurement procedures
- 4/22/21 – Brenda and Katie attended Nevada Reads meeting
- 4/22/21 – Official Launch of Water Connects Us All
- 4/22/21 - Brenda's Kolo 8, KTVN TV interviews and KKOH radio interview aired
- 4/22/21 - Katie met with NEON re: Water Connects Us All social media outreach
- 4/27/21 - Brenda, Shane, and Katie met to coordinate 4/29/21 Float Trip
- 4/27/21 – Debbie attended High Water Mark Outreach meeting
- 4/28/21 – Ed attended Nevada Silver Jackets meeting
- 4/28/21 – Katie participated in RFR Tree Planting event
- 4/28/21 - Shane, Brenda and Katie conducted reconnaissance float of Carson River in prep for 4/29 float
- 4/28/21 – Ed met with JE Fuller re Ruhenstroth ADMP Mitigation Alternatives
- 4/29/21 – Ed, Brenda, Shane, and Katie hosted Carson River Float for community leaders
- 4/30/21 – Staff meeting (ALL)
- 4/30/21 Ed Met with Mike Workman
- 4/30/21 – Brenda met with NEON re drinking water campaign outreach
- 5/3/21 - Ed met with Dave Nelson and Mark Gardner
- 5/4/21 – Brenda and Shane gave presentation to Rotary Club
- 5/5/21 – Ed and Catrina host Finance Committee meeting re: FY 21-22 Budget

- 5/5/21 – Brenda, Shane and Katie attended meeting with NDEP re creation of Ag and Rec Working Groups, One Truckee River Friendly Landscaping initiative
- 5/5/21 - Ed and Debbie met w/ Cardno , Carson City, and Douglas County staff to go over the Clear Creek LOMR study
- 5/5/21 - Ed met with Lumos to review Water Marketing Report
- 5/6/21 - Katie conducted photo monitoring with CVCD
- 5/6/21 - Ed & Debbie attended FEMA training
- 5/6/21 - Debbie attended advanced Mapping Information Platform training
- 5/6/21 - Ed met with Divid Griffith and January Riddle
- 5/7/21 - Ed met with Ken Gray
- 5/7/21 - Ed and Debbie met with Michael Baker about Web Access System
- 5/10/21 - Ed met with Stacey Giomi
- 5/12/21 - Ed met with Lisa Schuette
- 5/10/21-5/14/21 – Debbie attended ASFPM Virtual Conference
- 5/11/21 - Ed and Debbie gave West CC Drainage Study Results presentation
- 5/14/21 - Ed met with Jack Jacobs and Fred Stodieck
- 5/18/21 – Ed attended CTWCD Board meeting
- 5/15/21-5/16/21 - Katie attended Wildland Fire Fighting Class
- 5/18/21 – Ed attended 2022 NWRA Annual Conference Planning meeting
- 5/19/21 - Debbie attended advanced Mapping Information Platform training

**STAFF RECOMMENDATION:** Receive and file.

**NO CORRESPONDENCE**